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THE UNIVERSITY OF ALBERTA

FEED SUFFICIENCY STUDY OF NOVA SCOTIA

LIVESTOCK PRODUCERS

BY

BEV T. CONNELL

A PAPER SUBMITTED TO THE DEPARTMENT OF RURAL ECONOMY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF

MASTER OF AGRICULTURE

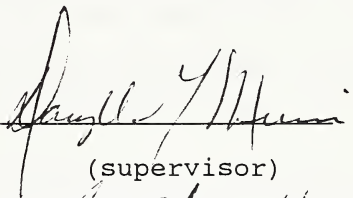
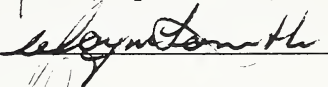

DEPARTMENT OF RURAL ECONOMY

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THE UNIVERSITY OF ALBERTA
DEPARTMENT OF RURAL ECONOMY

The undersigned certify that they have read and recommend to the Department of Rural Economy for acceptance , a paper entitled FEED SUFFICIENCY STUDY OF NOVA SCOTIA LIVESTOCK PRODUCERS , submitted by Bev T. Connell in partial fulfillment of the requirements for the Degree of Master of Agriculture in Extension Education.


(supervisor)



DATED : Oct 1 / 90

ABSTRACT

The purpose of this project was ; (1) to determine the most effective method of disseminating crop production information to Nova Scotia livestock and feed producers ; (2) to determine the views and attitudes of feed producers in the province toward a Feed Sufficiency Strategy by the year 2000 ; and (3) to establish a data base of information which can be used to assist in future program and policy formulation for the livestock feed industry in Nova Scotia.

The data was collected using a mail-out survey questionnaire. The data was analyzed using SPSS software and Spearman rank correlation tests as well as tests of proportion were used to determine significant relationships.

The return rate for the questionnaires was nearly 60% of the mail-out. This provided an accuracy of 5% at a confidence level of 95%. The analysis indicates that ; (1) the Extension Services Division of the Nova Scotia Department of Agriculture and Marketing play an important role in the provision of feed production information to Nova Scotia livestock and feed producers and (2) the Nova Scotia livestock and feed producers do not support the Feed Sufficiency objectives as set out by the Maritime Farmers Council in 1984.

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Chapter One

Introduction

From 1941 to 1976, Maritime farmers developed pork and poultry industries almost entirely dependent upon imported grains from Western Canada. The dairy and beef sectors also relied heavily on imported feed grains. This dependency was mainly due to the financial assistance provided by the Feed Freight Assistance subsidy, which allowed for the provision of grain at comparable prices to those charged in other regions of Canada.

The erosion of the Feed Freight Assistance Program (FFA), from 90% of the transportation costs in 1969 to less than 25% of the costs in 1985, has opened a wide gap in the price of feed grains between the Maritimes and the rest of Canada. (Refer to Appendix-C.) This coupled with the inherent use of local corn in Central Canada supports the need for a shift in the direction of the Maritime agricultural industry. The livestock sector must reduce its dependency on imported feed grains and become more self-sufficient in feed produced in the region. The future size and type of the livestock and poultry industries in the region will depend on the amount and quality of forage, grain and protein crops which can be produced here to feed them.

The greatest challenge facing Maritime agriculture will be to become more self-sufficient in feed at a cost of production which will allow for competitive marketing of their products. Feed sufficiency appears to be a great opportunity for the Maritime Provinces livestock and poultry industries and ultimately may be required to insure its survival.

In 1985 the Maritime Farmers Council (MFC) developed a Feed Sufficiency Strategy for the Maritime livestock and poultry industries. The objectives of this Strategy were to increase the levels of feed production in the Maritime provinces to provide 100% of the feed grains and forages as well as to increase the level of protein crops being produced to supply 50% of the required amounts. The increases in feed production were to be accomplished cost-effectively in order for the livestock and poultry industries to maintain a competitive position in the National and International marketplace.

The objectives of the Feed Sufficiency Strategy were reinforced with a Federal/Provincial Livestock Feed Initiative assistance program (ALFI) which provided incentives to farmers to improve their structural, technological and human resources relevant to increased feed production.

Over the next several years farm enquiries were made to determine the level of support for this Strategy. In most

cases the farmers were not aware of the Strategy and, those who were did not totally support it.

Due to the apparent lack of support for or knowledge of the Feed Sufficiency Strategy a further investigation was felt to be necessary. The objectives of this project are three-fold: (1) to determine the most effective method of disseminating crop production information to Nova Scotia feed producers, (2) to establish the views and attitudes of feed producers towards feed sufficiency in the province and (3) to establish a data base of information which can be used to assist in future policy formulation for the livestock feed industry in Nova Scotia.

This project will evaluate several of the objectives set forth in the Strategy as they relate specifically to Nova Scotia feed producers. These objectives include: (1) the identification of factors related to feed production in Nova Scotia and (2) the importance of information sources and the role of Extension in the information transfer process.

This report will also examine the livestock and crop production levels over the past 15 years and the effects of the Feed Initiative assistance program on production levels since 1985.

In chapter two a review of the methodology used in researching this report is presented. It contains many of the reference sources which provided the background and

statistical information for this report. Also included is a review of the sampling procedures used for the information survey and a description of the questionnaire design and statistical analysis techniques.

Chapter three is divided into several sections which include: historical background of Nova Scotia's feed production situation, livestock and feed production statistics from 1976-1984, policy formulation information and a discussion of the major findings of other information assessment projects.

Chapter four contains the results from the information questionnaire analysis as well as statistical data relevant to the feed and livestock industries in Nova Scotia following 1985. The results have been divided into four major categories being: characteristics of respondents, production levels of feed and livestock in Nova Scotia from 1985 to 1989, information sources important to Nova Scotia feed producers and the role of the Extension Services Division of the Nova Scotia Department of Agriculture and Marketing in the information transfer process, and farmers attitudes and opinions towards increased feed sufficiency.

Chapter five contains a summary of the findings from the information survey and the conclusions and recommendations drawn from those findings.

Chapter Two

Methodology

Information Search

A literature search was conducted to access relevant research studies regarding information sources used by farmers as well as information needs of farmers and farm families. Several complimentary studies were discovered such as: Information Needs of Alberta Farmers and Farm Families which was researched for Alberta Agriculture in 1983, Information Systems: Current Assessment and Future Needs a report by Donald Blackburn in 1986 and another study by Donald Blackburn (1983) entitled Farm Information Sources Important to Ontario Farmers, to mention but a few.

A review of the Nova Scotia Agricultural Statistics, for the years 1976 to 1989 was conducted to obtain the production information contained throughout this report in regard to livestock and feed production levels. Other information sources which have been researched for this report include a variety of government publications, regarding the Feed Freight Assistance Program, and other government policies.

Also accessed for this project were several unpublished working documents from the Maritime Farmers Council and Nova Scotia Department of Agriculture and Marketing which provided information regarding policy position and the

development criteria for the objectives of the Feed Sufficiency Strategy.

Sampling

The use of sampling in modern statistical and probability theory has been proven to be very accurate, and if error is present, its extent is generally known (Baily, 1978). The process involved in sampling consists of selecting a subset of a predetermined size, from a given population. The subset should be representative of the entire population so the information collected will be representative of the data which would be gathered for the entire population.

The advantages of sampling are: to say the least, time and money. Other advantages of sampling relates to the amount of detail and attention required for supervision and follow-up of the research project. The effective design and selection of a representative sample involves a lot of time and expertise in order to ensure accurate results (Baily, 1978).

For the purposes of this project, the sampling method used was a stratified random sample. This was obtained by separating the population of Nova Scotia's livestock producers into commodity groups. From within each group a random sample was then selected.

The strata for this population were: dairy, beef, poultry, hog and sheep producers. The random sampling procedure ensured that each individual within the strata had an equal probability of being selected for the project. This method eliminated the possibilities of bias towards any individual within the population.

Sample size used for the stratified groups were selected using a sample size table. The size of the population for each stratum was known, and an accuracy of plus or minus 5% was selected at a confidence level of 95%. In order to ensure a high degree of accuracy from the sampled groups, a non-return error of at least 20% was accounted for by selecting the additional number of respondents as required. The following table presents the information for the stratified samples used for this project.

Table 1. Stratified Sample and Selection Data

Strata	Population	Required Sample Size	Sample Size Selected	Sampling Error
Dairy	462	215	261	+20%
Beef	800	267	320	+20%
Hogs	112	87	119	+22%
Poultry	143	104	150	+28%
Sheep	148	106	134	+20%
Totals	1665	318	984	+208%

Questionnaire Design

To obtain the necessary information for this project a mail-out questionnaire was used. The purpose of the questionnaire was to collect information regarding the livestock producers feed production practices, to ascertain information sources used to gather their feed production information and to reveal their attitudes towards increasing feed production.

The questionnaire was designed using the "Total Design Method" as described by Don Dillman (1978). It consists of a mixture of open-ended questions, closed-ended questions and several questions which incorporate both types. Likert Scales (Baily, 1978) with a 5 point rating system were used extensively to obtain quantifiable information regarding opinions and attitudes of the livestock producers involved in this study. This allowed the respondents to be divided into groups for computing frequency distributions of their scale scores. (See Appendix-B for questionnaire design.)

To accompany the questionnaire, a cover letter and postage-paid return envelope were included in the mailed package. These were intended to encourage participation in the project by stressing the importance of their opinions and providing them with further information regarding the project objectives and also a method of returning the questionnaire. In addition, each of the producers were given

the option of receiving a copy of the results upon their request.

The first follow-up letter was sent to all participants one week after the questionnaire was mailed. This follow-up was to remind those who had not completed and returned the questionnaire to do so as soon as possible, and to thank those who had already done so. A second follow-up was conducted by the agricultural representative for each county within the province. A list of farms which had not replied following the first follow-up letter was supplied for each county and those people were contacted individually by their respective Agricultural Representative. (See Appendix-D for a copy of the follow-up letter.)

Questionnaire Analysis

The data obtained from the survey questionnaire was analyzed using the statistical analysis and data management program SPSS. The questionnaire was specifically designed to record data in such a way as to make it easy to enter the results into this computer program. The questionnaire was numerically coded to simplify the data entry as well as the analysis. The SPSSX, Data Entry-II software package was utilized to create the entry form for the data. The data files were then transferred to the SPSSX program for analysis (Norusis,1986).

Chapter Three

Background of Nova Scotia Feed Production

Historical Review

Following the turn of this century Nova Scotia was practically self-sufficient in feed grain production and this trend continued up until the 1940's. The main feed grain produced was oats, which was used to feed the horses used on farms, in forestry operations and for other general services. Oats was also used as the base grain in mixed feed rations for dairy, hogs and poultry. Research emphasis had been on the development of crown rust resistant varieties due to the severe rust problems encountered (MFC,1985).

With the technological advances in the primary industries diesel and gasoline powered equipment came to the forefront. This greatly reduced the need for horse power and in turn caused a substantial reduction in the demand for oats. Another factor which reduced the demand for oats was the improvement in performance potential of livestock and poultry which demanded feed grains with higher levels of digestible nutrients. The general lack of success with growing wheat and barley crops in the province led to producers looking to Western Canada as a source of feed grains.

The major barrier to importing Western feed grains was the transportation costs. Recognizing the potential market

opportunities in Eastern Canada, Western producers supported a government subsidy program on transportation costs associated with Western grains to regions east of Thunder Bay.

The Feed Freight Assistance Program (FFA) was established in 1941 and for the next 30 years covered at least 90% of the transportation cost of Western grains to Eastern Canada. The FFA was originally conceived as part of a wartime effort to maintain and increase livestock production required for war demands under conditions of price control (Paddock, 1986). The objectives of the Feed Freight Assistance program were: (1) to make available adequate supplies of feed to maintain livestock production for domestic and export requirements, (2) to keep the costs of livestock production down, and (3) to equalize prices paid by users for feeds all across Canada (Paddock, 1986). This competitively priced grain as well as other government programs encouraged the expansion of a viable livestock and poultry industry in the Maritimes. The dairy and poultry sectors are now able to supply 100% of the required consumer products provincially, while the beef and pork sectors have continued to produce competitively with the rest of Canada (MFC, 1985).

As can be seen in Table 2 the livestock production figures for dairy and beef cows, other cattle sheep and eggs remained relatively stable for the 10 years prior to the

Feed Sufficiency Strategy, although the transportation costs on grain imports increased substantially. (See Appendix-C.) During this same time the hog inventory in Nova Scotia increased by 115% and the poultry meat sector increased by 32% (Agricultural Statistics, 1989).

Table 2. Nova Scotia Livestock Production Figures
(1976-1984)

Year	Dairy Cows	Beef Cows	Other Cattle	Pigs Total	Sheep Total	Eggs (000) doz.	Poultry Meat (000) lbs.
1984	34800	23800	76400	158000	45000	17780	39952
1983	35000	24000	78000	148000	46000	19273	36369
1982	35700	24300	79000	145000	44000	18843	35183
1981	36200	24200	80300	139300	43000	19003	36612
1980	36200	25000	76800	121000	42000	18907	37331
1979	38000	26500	70500	104000	41000	17359	37088
1978	40000	27500	68500	89000	39000	16589	33451
1977	39000	28600	70400	77000	39700	*	30091
1976	38600	28379	72603	73430	38703	*	*
-10% -16% +5% +115% +16% +7% +32% (% Change Between the Years of 1976 and 1984)							

* = data not available

(source: Nova Scotia Department of Agriculture and Marketing, Agricultural Statistics, 1989)

The other major effect of the Feed Freight Assistance Program was that Maritime Agriculture abandoned cereal grain production as the importation costs were lower than the

production costs. By 1976 the acreage of cereals had decreased by over 50% from the previous 30 years. Another factor assisting this acreage decline was that the climate in Nova Scotia favours forage production and thus, the agricultural industry turned its attention towards doing a better job of producing forages and was willing to buy its grain from Western Canada (MFC, 1985).

By the early 1970's, Ontario had developed new corn hybrids which led to their self-sufficiency in feed grain production. In 1967, the corn being produced in Ontario and shipped to the Atlantic provinces was made eligible for FFA. Western Canada and the Western politicians began to exert pressure to eliminate the transportation subsidies to Eastern Canadian producers due the added advantages being enjoyed by the Ontario producers. In 1976 the equalization base for FFA was moved eastward from Thunder Bay to Montreal thus eliminating all FFA rates under \$6.60/tonne in Ontario and western Quebec.

The change in equalization base along with the increasing costs associated with transportation systems were not offset for the Atlantic provinces by the FFA, and subsequently, coverage of the transportation costs by the FFA decreased from 90% in 1969 to less than 25% in 1985. (Refer to Appendix-C.) The freight rates for protein crops and other concentrates also increased rapidly but they were not eligible for assistance under this program. The results of these events

have brought us to the current situation of feed price disparities which are threatening the survival of Eastern Canada's livestock industries.

During this same time period (1969-84) the acreage of barley, wheat, oats and corn, being produced in Nova Scotia, increased 38%, 22%, 10% and 17% respectively. (See Table 3.) The bushels/acre yield also increased substantially during this period but could not keep up with the demands for feed grains.

Table 3. Nova Scotia Grain Acreage and Yields (1971-84)

	Barley		Wheat		Oats		Corn	
	acre	bu/ac	acre	bu/ac	acre	bu/ac	acre	bu/ac
1984	12000	54.0	6000	47.8	19500	5.95	5400	74.1
1983	11000	51.2	5000	46.0	19000	59.5	4900	80.0
1982	9000	52.0	5700	46.0	18000	58.0	4900	75.5
1981	8600	50.0	7100	43.9	16600	55.0	4600	76.1
1980	5500	49.6	6500	40.9	15500	55.3	*	*
1979	6000	42.2	4500	42.0	14500	45.0	*	*
1978	4100	53.3	4800	44.6	14000	57.1	*	*
1977	4500	41.3	4700	36.4	15000	44.0	*	*
1976	4500	48.9	3800	42.6	18900	53.0	*	*
1971	8700	37.6	4900	38.1	17800	41.5	*	*
% Change (1971-84)	+38%	+44%	+22%	+25%	+10%	+43%	+17%	-3%

* = data not available

(source: Nova Scotia Department of Agriculture and Marketing, Agricultural Statistics, 1989)

From this data it can be seen that moderate increases in acreage have been achieved along with substantial increases in the yields of the grain crops. One of the main limiting factors inhibiting larger acreage increases over the past 15 years has been the input costs. The cost of production for barley, wheat and oats per tonne are; \$182.12, \$199.51 and \$236.37 respectively (See Appendix-A.)

In 1985, the Maritime Farmers Council put forth the Maritime Feed Sufficiency Strategy, to address the feed cost concerns of the Maritime farmers. This Strategy was developed to help to meet the needs for a fundamental shift in the direction of Maritime feed production. The specific objectives of this Strategy are: (1) By the year 2000, to replace with local production all imported FFA assisted feed grains and at least half of the protein concentrates required by the Maritime livestock industry. (2) To achieve a high level of quality in Maritime forage crops which are to serve as the main source of feed for ruminant animals. (3) To grow the previously described crops at a cost which will allow our crop and livestock producers to successfully compete in the domestic and foreign markets.

The Strategy, consisting of 26 features under the headings of production, marketing and support services, is designed to accelerate the process so that the objectives can be accomplished in the next 15 years (MFC,1985).

In the meantime the Maritime Farmers Council proposed the following to the Federal Government: (1) that FFA rates be increased to cover 60% of the transportation costs, (2) that locally produced grains receive FFA payments, and (3) that vegetable proteins of Canadian origin be made eligible for assistance (Paddock, 1986).

As an indication of the volumes of feed grains being imported per year into Nova Scotia the following table is presented.

Table 4. Feed Freight Assisted Shipments of Grain to Nova Scotia (1977-84) Tonnes

Year	Wheat	Oats	Barley	Corn	Total Feed
83-84	23359	9650	95926	86026	239575
82-83	12179	7943	66221	88716	220877
81-82	15129	11556	76739	90675	238506
80-81	34925	14730	74789	71764	228855
79-80	44592	14851	89667	64631	230304
78-79	59429	14655	72486	58817	226458
77-78	31962	14730	40349	67431	194292
% CHANGE (1977-84)	-27%	-34%	+138%	+28%	+23%

Note: Individual grain shipments in Table-5 do not add up to total feed imports due to the exclusion of various complete feed products.

(source: Nova Scotia Department of Agriculture and Marketing, Agricultural Statistics, 1989)

The figures in Table 4 indicate a gradual increase in the total feed imports which is likely due to the expanding hog and poultry sectors in the province. Provincial production figures indicate about 54,300 tonnes of feed grains were produced by Nova Scotia livestock and feed producers for 1984. Therefore, the total consumption of feed in the province was 293,875 tonnes of which only 18.5% was produced locally. This further illustrates the seriousness of the feed production situation in the province.

At the same time forage production was in excess of 100%, with some forage being produced for export markets, while the level of protein crop production accounted for about 15% of the required amounts (MFC,1985).

Feed Initiative Policy

To support the Maritime Feed Sufficiency Strategy the Nova Scotia and Federal government cooperatively initiated the Atlantic Livestock Feed Initiative (ALFI) in 1987. The objectives of the Canada/Nova Scotia ALFI Agreement (1987-91) are to promote the development of the livestock feed industry in Nova Scotia and to assist the province to achieve livestock feed self-sufficiency.

The Agreement includes five programs which have been designed to: (1) increase the quantity and quality of livestock and poultry feed produced in the province, (2) promote the development and production of new and/or

improved feeds, (3) improve feed production, processing and utilization systems,

(4) improve producers technical and managerial skills as they relate to feed production. The Agreement is administered by a joint federal/provincial management committee and assisted by an implementation committee for each program.

The responsibility for delivering and enforcing the ALFI Feed Assistance program falls under the jurisdiction of the Extension Services Division of the Nova Scotia Department of Agriculture and Marketing.

To successfully disseminate technological and feed production information to the clientele, it is important to determine the most effective and efficient methods of information transfer. One of the main purposes of this project is to determine the information needs of Nova Scotia's feed producers. This will be accomplished by collecting data in the following key evaluation areas:

(a) What information do Nova Scotia's farmers need to make management decisions regarding feed production practices?

(b) From what sources do farmers currently obtain information regarding feed production?

(c) What are the preferred methods for obtaining information relevant to feed production?

(d) Is the Extension Services Division of N.S.D.A.M. perceived as a valid and useful source of information ? Are the farmers satisfied with the information and services being provided by the N.S.D.A.M.?

In 1983, Alberta Agriculture conducted an information needs assessment of farmers and farm families in Alberta to determine the most effective and efficient methods of information transfer. They concluded the three most useful information sources were; friends and neighbours, radio broadcasts and Alberta Agriculture. They also concluded that farm magazines, newspapers and district agriculturalists were the best sources of crop production information (Alberta Agriculture, 1983).

The information being provided by Alberta Agriculture to the farm clientele was perceived to be easy to obtain, current, reliable and easy to understand. Ninety two percent of those surveyed indicated that their contact with Alberta Agriculture was through the district agriculturalists which further illustrates the importance of the extension services in the information transfer process.

Blackburn (1983) conducted a survey to obtain farmers' opinions concerning the importance placed on information sources in Ontario. He concluded that the Ontario Ministry of Agriculture and Food (OMAF) publications and bulletins were the most important sources of information with the county OMAF extension offices being the second. He further

recognized the importance of the private or profit-oriented sector in the farm information system. Blackburn recommended the link between extension workers and particularly farm magazines and newspapers be effectively maintained due to the role farm media plays in information transfer (Blackburn, 1983).

The importance of farm magazines and newspapers and the importance of extension agents in effective information transfer has been illustrated in several studies across the U.S. and Canada.

Problem Definition

The effects of the higher feed prices in the Maritimes, due primarily to transportation costs, have placed the livestock industries at a price disadvantage on the National and International markets. For example, comparing the Maritimes with Ontario, it costs \$16 more in feed to finish a market hog; 6 cents more per kilogram to feed broiler chickens; 6 cents per dozen more for eggs and 2.9 cents per litre more to produce milk, in the Maritimes respectively (MFC, 1985).

Table 5. Provincial Averages of Mixed Feed Prices
(\$ per tonne July, 1984)

	Manitoba	Ontario	Maritimes
Dairy Ration (15-16%)	195	200	258
Dairy Supplement (32%)	278	269	340
Hog Grower (15-16%)	212	207	254
Hog Supplement (35-40%)	346	291	370
Laying Mash (16-18%)	213	225	256
Broiler Starter (22-23%)	164	250	303

(Source - Maritime Farm Council Report, 1985)

The Maritime Farm Council (MFC) believe that the survival and future development of its livestock and poultry industries will be seriously threatened should the feed price disparities be allowed to grow. The present policy of the Council is that the only viable long-term solution to the price gap disparity is for the Maritimes to target production to become more self-sufficient in forages and feed grains, and to produce 50% of the required protein crops. These targets they feel can be accomplished by the year 2000 at a cost which will allow the Maritime crop and livestock producers to be competitive in the National and International marketplace (MFC,1985).

The problems associated with this strategy are wide ranging and encompassing for Maritime Agriculture. The poultry and hog industries, as previously stated, are dependent upon imported feed grains and most lack a

sufficient landbase to produce the high feed grain volumes required to be self-sufficient. The farmers in the other livestock industries which have a landbase do not have economies of scale to be able to own the equipment and facilities required for grain production. With respect to storage, handling and processing equipment and facilities; these would need to be established in conjunction with the increased feed grain production.

Other areas which will require attention include: land improvements - in terms of fertility, drainage, and newly cleared land; field equipment and, research to provide new technology aimed at increasing feed production.

Another area which will require attention to support the Feed Sufficiency Strategy is to evaluate the importance of information sources relevant to feed production as well as to evaluate the role of the Nova Scotia Department of Agriculture and Marketing's (N.S.D.A.M.) Extension Services Division in disseminating the information.

A final problem to be addressed is whether the Maritime farm community supports the strategy, or will continue to accept a lower profit margin. By accepting a lower profit margin due to higher feed input costs they remain competitive with other Canadian producers but continue to import the required feed grains.

The two research hypotheses that will be evaluated in this project are:

That Extension Services Division of N.S.D.A.M. play an important role in the provision of feed production information to Nova Scotia's livestock and feed producers;

and

That livestock producers do not support the overall objectives of the Feed Sufficiency Strategy.

Objectives

The primary objectives of this project are: (1) to determine the importance of the Extension Services Division for information transfer (2) to determine the amount of support the Nova Scotia livestock producers will give towards a Feed Sufficiency Strategy to increase feed production in the province and (3) to provide information for use in future development of programs and policies for the livestock and feed sector. Data regarding their feed production practices and information sources that are used to obtain feed production information will be analyzed to test the hypotheses.

Statement of Benefit

The anticipated benefits from this project are: (1) to provide information which can assist with the development of a feed production program which reflects the present concerns of the producers; (2) to enable the Extension

Division to provide a more effective service to the livestock and feed producers with regard to increased feed production and (3) the data will assist in determining a clear direction for the future feed industry in the province as well as raise issues which may require further investigation and analysis.

Chapter Four

Results

This chapter of the project report contains the results from the data analysis of the survey questionnaire as well as other production statistics and policy expenditure data for the years 1984 to 1989. The results are divided into four sections which correspond to the areas described earlier; characteristics of the farms surveyed, production statistics for the years 1985 to 1989, information sources and the role of extension in the transfer of feed production information, and data with regard to the attitudes and opinions of feed producers toward the MFC Feed Sufficiency Strategy. The following table contains information with regards to the number and type of respondents who returned the survey questionnaire. The return rate was lower than anticipated and decreased the accuracy of the results within each strata, although the provincial data is well above the required accuracy of 5% at a 95% confidence level.

In the following table the required sample size refers to the number of respondents within each strata needed to obtain 5% accuracy at a confidence level of 95%. The population size refers to the number of farms within each strata with a gross farm income in excess of \$10,000 per year.

Table 6. Commodity by Returned Questionnaires

Strata	Population	Required Sample Size	# Returned	% of Required
Dairy	462	215	151	70.2%
Beef	800	267	118	44.2%
Poultry	143	104	50	48.1%
Hogs	112	87	46	52.9%
Sheep	148	106	37	34.9%
Province	1665	318	402	126.0%

As can be seen in table 6 the provincial response was very good. Within each of the commodity strata selected the return rate was less than the required number in order to be statistically accurate at a level of confidence of 95%. From the 402 questionnaires returned 380 were useable. The highest return was from the dairy producers at 70% which provincially represents 37.6% of the total response. The other commodities beef, poultry, hogs, and sheep represent 29.4%, 12.4%, 11.4%, and 9.2% respectively of the total response.

For the purpose of this report most of the references will be directed toward the provincial results rather than the individual strata due to the level of response within some strata. Data with regard to the individual strata have been included and many inferences and comments addressing those results will be used to support or refute the provincial results.

Characteristics of Farms Surveyed

The following section outlines the characteristics of the farms surveyed for this project. Included will be data with regard to commodity, gross farm sales, education and non-farm income. The commodity groups selected only included the livestock sectors of Nova Scotia's agricultural producers. Also due to the lack of data within some of the various categories of gross farm income, education and percent non-farm income, categories were combined within each subgroup in order to provide sufficient data for analysis. The gross farm income subgroup has four sections being; less than \$50,000, \$50,000 to \$100,000, \$100,000 to \$250,000, and more than \$250,000 per year. The percent non-farm income group has been divided into four sections which are; 0%, 1-49%, 50-74% and more than 75%. This represents the amount of income (% of gross farm income) earned by either the farm operator or the spouse from non-farm employment.

The education subgroup has been divided into three sections of: grade school, high school, and college/university. Grade school refers to those respondents with grade school education or less. High school represents those with either some high school or have completed high school. College/university represents the group which has attended university or college or completed university or college.

Table 7. Education of Farm Operator and Gross Sales
(% of Respondents)

Education	Gross Farm Sales 1989			
	n=114 <\$50,000	n=44 \$50- 100,000	n=92 \$100- 250,000	n=100 >\$250,000
Grade School	27.0	11.4	12.0	5.0
High School	20.2	47.7*	44.6*	51.0*
Coll./Univ.	26.3	40.9*	43.5*	44.0*

(* = significant at 0.05 level)

From table 8 it can be seen that good cross section of farms have been included in this study. The farms under \$100,000 per year of gross farm income are mainly the beef and sheep producers and those over \$100,000 are the dairy, hog, and poultry producers. Table 7 shows the education level of respondents within each section of gross farm income. As the gross farm income increased the number of farm operators with grade school or less decreased. Overall 88% of the farm operators had an education level of some high school or better. The number of farm spouses with some high school or better was greater than for the farm operator at 96%. (See table 9.)

Table 8. Commodity and Gross Income of Farms Surveyed
(% of Respondents)

Commodity	Gross Farm Sales 1989			
	<\$50,000	\$50- 100,000	\$100- 250,000	>\$250,000
Dairy	8.1	14.2	47.3	30.4
Poultry	12.2	4.1	10.2	73.5
Beef	73.5	11.4	9.1	5.7
Hogs	2.5	10.0	22.5	65.0
Sheep	79.4	20.6	0	0
Province (Totals)	30.9	12.3	25.6	31.2

A test of proportions reveals a significant number of farm operators within each of the gross income sections above \$50,000 per year have some high school or better.

Table 9. Education of Farm Operator and Spouse

Education	Farm Operator (%)	Spouse (%)
Grade School	12.3	3.9
High School	48.4*	52.6*
College/ University	39.2*	43.2*

(* = significant at 0.05 level)

A significant number of the respondents have either some high school or better as well as their spouse. Table 10 shows the distribution of education level with regard to

the specific commodities and the provincial results. There is a significant number of beef producers with less college/university level education than within the other commodities and provincial results. There is no significant differences between commodities and education levels or provincial results within the other education sections. The results are expressed as a percent of the respondents within each strata not as a percent of the provincial totals. Table 55 in Appendix E contains data with regard to the education of farm operators and the percent non-farm income earned per year. There is a significant number of respondents within each of the education sections earning less than 50% of their income from non-farm employment.

Table 10. Commodity and Education of Farm Operator
(% of Respondents)

	School	High School	College/Univ.
Dairy (n=149)	12.8	48.3	38.9*
Poultry (n=49)	4.1	42.9	53.1*
Beef (n=88)	17.0	59.1	23.9
Hogs (n=39)	7.7	43.6	48.7*
Sheep (n=33)	18.2	48.3	48.5*
Province (n=358) (Totals)	12.6	48.3	39.1*

(* = significant at 0.05 level)

Another characteristic of the farms surveyed is that almost 70% earn less than 50% of their income from non-farm employment and almost 40% reported no income other than farm income. Also the beef and sheep sectors represent 60% of those farms reporting non-farm income in excess of 50% of their total income (Table 11).

Table 11. Commodity and % Non-Farm Income
(% of Respondents)

Commodity	% Non-Farm Income			
	0%	1 - 49%	50 - 74%	>75%
Dairy (n=148)	59.3	26.0	4.0	10.7
Poultry (n=49)	39.6	33.3	12.5	14.6
Beef (n=88)	14.6	34.8	24.7	24.7
Hogs (n=140)	47.4	36.8	10.5	5.3
Sheep (n=34)	2.9	32.4	17.6	44.1
Province (n=359) (Totals)	37.9	30.9	11.9	18.7

Production Statistics 1985 - 1989

The following section of this report provides the livestock and crop production statistics for Nova Scotia between the years of 1985 and 1989. This period is significant because during this time the livestock feed initiative program was available to feed producers.

Table 12. Nova Scotia Livestock Production Figures
(1985-1989)

	Dairy Cows	Beef Cows	Other Cattle	Pigs (Total)	Sheep (Total)	Eggs (000) doz.	Poul. Meat (000) lbs.
1989	33600	23000	714000	141000	36000	*	*
1988	33600	22600	69800	143000	38000	19021	52014
1987	34000	23300	72700	144000	39500	18508	49650
1986	34122	23177	77225	136200	38000	17831	45194
1985	34300	23400	75400	141000	41000	17931	41035
	-2%	-2%	-5%	0%	-12%	+6%	+27%
	(% Change from 1985 to 1989)						

* = data not available

(source: Agricultural Statistics, N.S.D.A.M. 1989)

During this period (1985-89) the number of cows and sheep have decreased in the province and the production of eggs and poultry meat have increased. The increases in poultry have been in response to the amount of poultry products used in the province since this is a supply managed industry.

Table 13 shows the importation of feed grains for the period 84-85 to 88-89. There has been a decrease in the tonnage of oats and corn being imported but the increase in wheat and barley imports have raised the total feed imports to Nova Scotia by 4% or nearly 10,000 tonnes. The total consumption of feed grains has increased by 14% during this period while the total production of feed grains have only

increased by 8%, thus decreasing the provinces self-sufficiency by 3.5% from 1988 (Table 14).

Table 13. Feed Freight Assisted Shipments of Grain to Nova Scotia (1985-89) tonnes

Year	Wheat	Oats	Barley	Corn	Total Feed
88-89	54279	7914	85709	88292	251620*
87-88	66267	5928	71256	107439	266544*
86-87	39200	7743	76934	95507	235655*
85-86	26990	10994	59408	99156	200292*
84-85	21037	11172	78408	103924	241936*
% Change (1985-89)	+158%	-29%	+9%	-15%	+4%

* = Individual grain shipments in Table 5 do not add up to total feed imports due to the exclusion of various complete feed products.

(source: Agricultural Statistics, N.S.D.A.M. 1989)

Table 14. Nova Scotia Feed Self-Sufficiency

	Year			
	84-85	85-86	86-87	87-88
Feed Produced (tonnes)	45600	51700	54600	49500
Imported Feed (tonnes)	126870	180453	222164	254891
Total Consumed (tonnes)	261470	232153	276764	304391
% Self Sufficient	17.4%	22.3%	19.7%	16.3%

(source: N.S.D.A.M. Agricultural Statistics, 1989.)

Another factor important to the level of feed imports is the acreage and yields of the feed grains being produced in the province. Table 15 shows that barley, oats and corn all decreased in acreage over the time period by 17%, 8% and 35% respectively. The acreage of wheat increased by 38% to 6900 acres. Although the acreage of feed grains decreased overall by 59% the increase in yield per acre resulted in a net increase in feed grain production of almost 10%. (Refer to table 14.)

Table 15. Nova Scotia Grain Acreage and Yields (1985-89)

	Barley		Wheat		Oats		Corn	
	acre	bu/ac	acre	bu/ac	acre	bu/ac	acre	bu/ac
1989	14000	59.3	6900	62.1	17000	58.8	1500	94.3
1988	12000	55.8	8000	56.3	15500	60.6	2500	92.0
1987	13000	57.6	7000	60.0	16600	51.9	2500	57.0
1986	12800	52.4	6300	50.8	16300	60.9	4900	33.7
1985	12000	44.4	5000	47.0	18500	50.8	5400	53.9
(% change 1985-89)	-17%	-34%	+38%	+32%	-8%	+16%	-35%	+76%

(source: Agricultural Statistics, N.S.D.A.M., 1989)

During the time period of 1984-1989 there was an incentive program called the Atlantic Livestock Feed Initiative which was aimed at increasing the feed self-sufficiency of livestock producers in the province. An analysis of the expenditures for this program reveal that

overall 3% of the funds were spent on administration, 29% were spent on grains and protein crops, 61% were spent on forage crops and 7% of the funds were spent on soils. Included in the grain expenditures is money which has been spent to encourage canola production and milling wheat for human consumption (Table 16).

Table 16. Summary of A.L.F.I. Expenditures

Source	(1987 - 1990, \$000)				
	1987	1988	1989	1990	Total
Administration	46.5	57.8	77.8	74.1	256.2
Cereals/Prot.	386.5	702.5	534.0	1,285.0	2,908.0
Forage	697.7	1,256.6	1,508.4	2,542.8	6,005.5
Soils	133.6	218.7	163.0	202.5	717.8
Totals	1,264.3	2,235.5	2,283.3	4,104.5	9,887.5

(source: N.S.D.A.M., 1990)

In defense of the data it can be said that by increasing the quality and quantity of the forage being consumed the quantity of feed grains and protein crops will decrease although this trend is not evident from the data in Table 14. Also the commodities which can utilize forages have been decreasing while the grain dependent commodities of hogs and poultry have either remained constant or increased.

Extension Information

This section of the project summarizes the results of the data collected to determine the types of information preferred by livestock feed producers and the role of the N.S.D.A.M. Extension Services Division in the delivery of feed production information.

The information sources reported in this project are those determined by the producer. The end source is given the credit and the originating source is not being included. For example, all print media has been grouped with newspapers/magazines even though it may have been provided by a researcher or extension agent.

The results are expressed as a percentage of the respondents within each strata not as a percentage of the total respondents. The provincial data is expressed as a percentage of the respondents answering each question. If a respondent did not answer the question they were excluded from the results.

Newspapers and magazines were the most preferred source of both grain and forage information at 34% of the respondents, soils and crops specialists were the second most preferred source at 21% and agricultural representatives were third with 15% of the respondents (Tables 17 and 18).

Table 17. Source of Grain Information by Commodity
(% of Respondents)

Info. Source	(n=118) Dairy	(n=36) Poultry	(n=74) Beef	(n=35) Hogs	(n=25) Sheep	(n=310) Prov.
News/Mags.	33.9	41.7	35.1	34.3	36.0	33.9*
Radio/TV	11.0	11.1	18.9	11.4	4.0	12.3
Agr. Rep.	17.8	5.6	17.6	8.6	16.0	13.9
Salesperson	8.5	16.7	5.4	25.7	16.0	10.6
Friend/ Neigh.	4.2	8.3	10.8	2.9	8.0	6.1
S&C. Spclst.	24.6	16.7	12.2	17.1	20.0	18.4
D^1_2	0	15.5	10.0	14.0	7.5	
r_s	1	0.56	0.71	0.60	0.79	
$Z_{0.05}$	*P.A.	1.25	1.60	1.34	1.76	

(*P.A. = perfect agreement)

The Spearman rank correlation test at a level of 0.05 determined there is no significant relationships between the provincial rankings and the individual commodity rankings for forage information sources (Table 18). For grain information sources there was perfect agreement between the dairy producers rankings and the provincial rankings although there is no significant relationship between the other commodities and the provincial rankings.

A test of proportions determined there is a significant difference between the first choice of newspapers and magazines and the second and third choices. There is no

significant difference between the soils and crops specialists and agricultural representatives as grain information sources but there was a significant difference between these two for forage information.

Table 18. Source of Forage Information by Commodity
(% of Respondents)

Info. Source	(n=137) Dairy	(n=26) Poultry	(n=76) Beef	(n=28) Hogs	(n=24) Sheep	(n=310) Prov.
News/Mags.	35.0	15.4	38.2	39.3	37.5	33.9*
Radio/TV	5.8	7.7	14.5	3.6	8.3	7.7
Agr. Rep.	13.9	19.2	15.8	25.0	16.7	15.8*
Salesperson	8.8	7.7	2.6	10.7	4.2	6.8
Friend/ Neigh.	7.3	7.7	13.2	3.6	16.7	8.7
S&C. Spclst	29.2	42.3	15.8	17.9	16.7	23.5*
D_i^2	6	8	5.5	8.5	4	
r_s	0.83	0.77	0.84	0.76	0.89	
$Z_{0.05}$	1.85	1.72	1.88	1.69	1.98	

Within the subcategories of gross farm income, education and % non-farm income, there was a significant relationship using the Spearman Rank Correlation test with the provincial rankings. The only exception was the grade school respondents who selected the agricultural representative and newspapers/magazines as the most important source of forage information, radio/TV as the second most important and friends and neighbours as the third. (See Table 61 Appendix-E.) For further information

with regard to information sources see Tables 56 through 60 in Appendix-E.

Due to the lack of response in the "other" category and agricultural researcher category they were dropped from the analysis. Less than 5% of the respondents selected either of them as a source of information.

The three most important sources of information were further analyzed to determine the frequency they were used by feed producers. Newspapers and magazines were used 1-6 times per year by 37% of the respondents for grain and forage information and 1-3 times per month by 40% of the respondents (Table 19 and 20).

Table 19. Commodity by Frequency of Use of Most Important Grain Information Source (News/Mags.)

Commodity	(% of Respondents)			
	Never	1-6 Times/Yr.	1-3 Times/Month	>1/Week
Dairy (n=128)	19.5	38.3	32.8	9.4
Poultry (n=41)	22.0	36.6	31.7	9.8
Beef (n=78)	25.6	30.8	35.9	7.7
Hogs (n=36)	13.9	25.0	44.4	16.7
Sheep (n=25)	8.0	36.0	44.0	12.0
Province	19.4	34.3	36.2	10.2

Table 20. Commodity by Frequency of Use of Most Important Forage Information Source (News/Mags)

Commodity	(% of Respondents)			
	Never	1-6 Times/Yr.	1-3 Times/Month	>1//Week
Dairy (n=130)	8.5	43.1	34.6	13.8
Poultry (n=37)	35.1	35.1	24.3	5.4
Beef (n=79)	20.3	34.2	36.7	8.9
Hogs (n=33)	21.2	33.3	33.3	12.1
Sheep (n=26)	15.4	38.5	42.3	3.80
Province	16.3	39.3	44.6	10.2

The soils and crops specialists were used 1-6 times per year by 54% of the respondents for grain information and by 66% of the respondents for forage information. 38% said they never use the soils and crops specialist for grain information and 27% said they never use them for forage information. The commodities of beef and poultry use them the least (Table 21).

Table 21. Commodity by Frequency of Use of 2nd Most Important Grain Information Source (Soils and Crops Specialist)

Commodity	Never	(% of Respondents)		
		1-6 Times/Yr.	1-3 Times/Month	>1/Week
Dairy (n=116)	34.5	30.3	5.2	0
Poultry (n=36)	47.2	47.2	5.6	0
Beef (n=68)	44.1	44.1	10.3	1.5
Hogs (n=31)	32.3	61.3	3.2	3.2
Sheep (n=21)	28.6	57.1	14.3	0
Province	38.3	53.8	7.2	0.7

Table 22. Commodity by Frequency of Use of 2nd Most Important Forage Information Source (Soils and Crops Specialist)

Commodity	Never	(% of Respondents)		
		1-6 Times/Yr.	1-3 Times/Month	>1/Week
Dairy (n=132)	16.7	72.7	9.8	0.8
Poultry (n=35)	42.9	54.3	2.9	0
Beef (n=69)	42.0	52.2	5.8	0
Hogs (n=28)	32.1	67.9	0	0
Sheep (n=25)	12.0	76.0	12.0	0
Province	27.0	65.6	7.1	0.3

The third most important source of information identified is the agricultural representative. 65% of the

respondents use them 1-6 times per year for forage information while 26% said they never use them for forage information. For grain information 50% said they use the agr. rep. 1-6 times per year and 40% said they never use them (Table 23 and 24).

Table 23. Commodity by Frequency of use of 3rd Most Important Grain Information Source (Agricultural Representative)

Commodity	(% of Respondents)			
	Never	1-6 Times/Yr.	1-3 Times/Month	>1/Week
Dairy (n=116)	37.1	52.6	10.3	0
Poultry (n=36)	50.0	41.7	8.3	0
Beef (n=70)	44.3	42.9	10.0	2.9
Hogs (n=32)	31.3	53.1	15.6	0
Sheep (n=20)	30.0	65.0	5.0	0
Province	39.2	49.7	10.5	0.7

Table 24. Commodity by Frequency of Use of 3rd Most Important Forage Information Source (Agricultural Representative)

Commodity	(% of Respondents)			
	Never	1-6 Times/Yr.	1-3 Times/Month	>1/Week
Dairy (n=129)	15.5	72.1	11.6	0.8
Poultry (n=32)	53.1	43.8	3.1	0
Beef (n=71)	33.8	56.3	5.6	4.2
Hogs (n=28)	35.7	60.7	3.6	0
Sheep (n=23)	13.0	78.3	8.7	0
Province	26.0	64.4	8.3	1.4

Respondents were asked to indicate how important various types of information were to the operation of their farm. The information types which were rated as most important were; first, weather forecasts; second, information with regard to government policy and third crop production technology information. There was no significant difference between the provincial rankings and the commodity groups, gross farm income categories, education subgroups or the different non-farm income groups (Tables 25 to 28).

Table 25. Importance of Types of Information by Commodity

Information Type	(n=143) Dairy	(n=43) Poultry	(n=75) Beef	(n=36) Hogs	(n=30) Sheep	(n=340) Prov.
Daily Mkt. Info.	2.9	3.1	3.1	3.8	2.4	3.1
Mkt. Forecasts	3.2	3.6	3.8	4.3	3.7	3.6
Crop Prod. Tech.	3.8	3.5	3.7	3.8	3.4	3.7
Pesticides	3.4	3.5	3.4	3.5	2.6	3.3
Gov't. Policy	4.2	4.0	4.3	4.4	3.9	4.2
Weather Reports	4.6	4.3	4.7	4.3	4.6	4.6

Table 26. Importance of Types of Information by Gross Farm Sales

Information Type	(n=95) <\$50,000	(n=420) 50- 100,000	(n=90) 100- 250,000	(n=104) >\$250,000
Daily Mkt. Info.	2.8	3.0	3.2	2.8
Mkt. Forecasts	3.8	3.2	3.3	3.8
Crop Prod. Tech.	3.4	3.4	3.9	3.9
Pesticides	3.0	3.3	3.2	3.7
Gov't. Policy	4.0	4.2	4.1	4.4
Weather Reports	4.7	4.6	4.6	4.4

(* note: average scores, 1= not important, 5= very important)

Table 27. Importance of Types of Information by % Non-farm Income

Information Type	(n=130) 0%	(n=103) 1-49%	(n=38) 50-74%	(n=61) >75%
Daily Mkt. Info.	3.1	3.1	3.3	2.8
Mkt. Forecasts	4.0	2.8	3.8	3.6
Crop Prod. Tech.	3.8	3.4	4.0	3.3
Pesticides	3.5	3.4	3.5	2.7
Gov't. Policy	4.3	4.1	4.2	4.0
Weather Reports	4.4	4.7	4.6	4.6

Table 28. Importance of Types of Information by Education

Information Type	Education of Farm Operator		
	(n=36) Grade School	(n=159) High School	(n=135) College/Univ.
Daily Mkt. Info.	3.0	3.3	2.9
Market Forecasts	3.6	3.7	3.5
Crop Prod. Tech.	2.9	3.8	3.9
Pesticides	2.8	3.4	3.4
Gov't. Policy	4.2	4.2	4.1
Wether Reports	4.6	4.6	4.5

The respondents were very satisfied with the services offered by the N.S.D.A.M. and there was a significant

relationship between the provincial rankings and the commodities, gross farm income, education and non-farm income groups. Overall the soil analysis service ranked first, with office visits second and feed analysis third. The lowest ranking over all the groups was the farm visits in which the respondents rated as satisfactory (See Tables 29 to 32).

Table 29. Satisfaction with N.S.D.A.M. Services by Commodity

Service from N.S.D.A.M.	(n=143) Dairy	(n=47) Poultry	(n=75) Beef	(n=37) Hogs	(n=31) Sheep	(n=346) Prov.
Pamphlets	3.9	3.9	4.2	3.8	3.8	4.0
Office Visits	3.8	3.8	4.0	3.7	4.0	4.0
Farm Visits	3.7	3.5	3.7	3.4	3.5	3.6
Meetings	3.2	4.0	3.8	3.6	3.4	3.8
Feed Anal.	4.2	4.3	3.8	4.2	3.8	4.1
Soil Anal.	4.4	4.2	4.2	4.4	4.5	4.3

(* note: average score, 1 = not satisfied, 5 = very satisfied)

Table 30. Satisfaction with N.S.D.A.M. Services by Gross Farm Income

Service from N.S.D.A.M.	(n=95) <\$50,000	(n=42) 50-100,000	(n=90) 100-250,000	(n=104) >\$250,000
Pamphlets	4.2	3.6	3.9	3.9
Office Visits	3.9	3.8	3.9	3.8
Farm Visits	3.5	3.4	3.7	3.7
Meetings	4.2	3.5	3.9	3.9
Feed Anal.	3.8	4.2	3.1	4.3
Soil Anal.	3.8	4.5	4.4	4.3

Table 31. Satisfaction with N.S.D.A.M. Services by Education

Service from N.S.D.A.M.	Education of Farm Operator		
	(n=36) Grade School	(n=163) High School	(n=143) College/Univ.
Pamphlets	4.2	4.0	3.8
Office Visits	2.3	3.9	3.8
Farm Visits	3.6	3.7	3.5
Meetings	3.7	3.8	3.9
Feed Anal.	3.7	4.2	4.1
Soil Anal.	4.0	4.4	4.0

(* note: average scores: 1= not satisfied, 5= very satisfied)

Table 32. Satisfaction with N.S.D.A.M. Services by % Non-farm Income

Service from N.S.D.A.M.	(n=134) 0%	(n=107) 1-49%	(n=39) 50-74%	(n=62) >75%
Pamphlets	4.0	4.0	3.9	3.9
Office Visits	3.9	3.9	4.3	3.6
Farm Visits	3.8	3.6	3.5	3.5
Meetings	3.8	4.2	3.9	3.6
Feed Anal.	4.3	4.1	4.1	4.0
Soil Anal.	4.3	4.4	4.4	4.3

(* note: Average Scores: 1= not satisfied, 5= very satisfied)

To determine the most important characteristic of the information being provided the respondents were asked to rate various characteristics on a scale of 1 to 5. They concluded the information must be easy to obtain, based on research and reliable. (See Table 33.) The respondents were also asked to select the top three characteristics from the list they rated. They said the information must be up to date, reliable and applicable to their area with 39%, 20% and 18% of the respondents answering respectively. (See Tables 62 through 64 in Appendix-E.)

Table 33. Characteristics of Information Provided by
N.S.D.A.M. by Commodity

Character	(n=128) Dairy	(n=44) Poultry	(n=75) Beef	(n=37) Hogs	(n=25) Sheep	(n=318) Prov.
Up to date	3.6	3.6	3.7	3.7	3.7	3.7
Reliable	3.7	3.7	3.8	3.7	3.7	3.7
Unbiased	3.6	3.6	3.6	3.4	3.7	3.5
Based on Research	3.8	3.7	3.6	3.8	3.6	3.7
Practical	3.5	3.5	3.4	3.7	3.4	3.5
Under- standable	3.8	3.7	3.4	3.7	3.6	3.7
Concise	3.5	3.5	3.2	3.6	3.5	2.8
Applic. to Area	3.6	3.5	3.4	3.7	3.4	2.9
Easy to Obtain	3.8	3.8	3.7	3.8	4.0	3.8

(* note: Average Score: 1= not satisfied, 5= very satisfied)

The respondents were asked to rate the various extension methods used as to which method they most preferred. Provincially on-farm trials and seminars/meetings were tied for the most preferred method with farm calls by extension workers being second and tours, demonstration sites and research plots tied for third. The least preferred method was through the use of short courses.

There was no significant difference between the selection of the top three choices (Table 34). Within the commodity groups, gross farm income groups, education and

non-farm income categories the respondents selected farm calls as the most preferred, seminars/meetings as the second and on-farm trials as third. Again there was no significant differences between these methods which scored 24%, 22%, and 20% of the respondents respectively. (See Tables 65 through 67 in Appendix-E.)

Table 34. Extension Method Preferred by Commodity

Ext. Method	(n=142) Dairy	(n=44) Poultry	(n=75) Beef	(n=39) Hogs	(n=29) Sheep	(n=342) Prov.
Short Course	3.7	3.7	3.9	4.1	3.5	3.8
Sem/ Meeting	4.1	3.9	4.0	4.2	4.2	4.1
Tours	4.0	3.5	3.9	3.9	3.5	3.9
Farm Calls	4.2	3.7	4.6	3.9	3.9	4.0
Demo. Sites	4.0	3.6	3.9	3.8	3.7	3.9
Research Plots	4.0	3.9	3.9	3.9	3.9	3.9
On-Farm Trials	4.1	3.9	4.0	4.2	4.2.	4.1

(* note: Average score: 1= not preferred, 5= very preferred)

Producer Attitudes and Opinions

The following section of this report includes data with regard to producers current production practices, limiting factors to increasing feed production, and producers

attitudes and opinions about increasing feed production on their farm.

Almost 90% of the livestock producers responding to this questionnaire are more than 75% self-sufficient in forage production while only 29% produce more than half of their feed grains. Overall 43% of the respondents reported they do not produce any of the feed grains used on their farm (Table 35).

Table 35. Percent Grain and Forage Produced by Commodity
(% of Respondents)

% Grain Grown	(n=144) Dairy	(n=43) Poultry	(n=85) Beef	(n=35) Hogs	(n=33) Sheep	(n=349) Prov.
0%	45.5*	57.8*	31.3	46.2	45.5*	43.2*
1-49%	36.4*	37.8*	8.4	46.2*	21.2	29.0
50-75%	4.2	0	21.7	5.7	24.2	9.9
75-100%	14.0	4.4	38.5	2.6	9.1	17.9
% Forage Grown						
0%	0	32.5*	3.4	22.6*	0	6.6
1-49%	1.4	0	2.3	0	0	1.2
50-75%	0.7	5.0	1.1	3.2	12.5	2.3
75-100%	97.9*	61.5*	93.2*	74.2*	87.5*	89.9*

(* = significant)

Of the producers who do not grow any feed grain on their farm 85% said they have no interest in producing grain in the future. Provincially 55% of the respondents have no interest of increasing grain production in the future. This

is a significantly higher number than those who are interested in increasing future grain production using the test of proportions at a level of 0.05. For further information with regard to interest in increasing grain production refer to Tables 68 through 70 in Appendix-E.

Table 36. Percent Grain and Forage Produced by Interest in Increasing Grain and Forage Production (% of Respondents)

Increase Grain		
% Grain Grown	Yes	No
0%	14.6	85.4
1-49%	65.4	34.6
50-75%	63.6	36.4
75%-100%	64.7	35.3
(Total)	44.9	55.1*
% Forage Grown		
0%	7.1	92.9
1-49%	0	100.0
50-75%	71.4	28.6
75-100%	44.8	55.2
(Total)	43.3	56.7*

(* = significant)

Producers were asked if a financial incentive program is required to encourage them to increase grain production and 53% of the respondents said no. There is not a significant difference between those who said no and the

producers who feel an incentive program is required to increase their grain production (Table 37).

Table 37. Percent Grain and Forage Produced by Interest in Increasing Grain and Forage Production (% of Respondents)

% Grain Grown	Financial Incentive Program Required	
	Yes	No
0% (n=109)	36.9	63.1
1-49% (n=79)	62.0	38.0
50-75% (n=21)	52.4	47.6
75%-100% (n=50)	44.0	56.0
% Forage Grown		
0% (n=10)	20.0	80.0
1-49% (n=3)	33.3	66.7
50-75% (n=6)	66.7	33.3
75-100% (n=235)	45.1	55.5

From those producers surveyed 39% have the ability to be self-sufficient in grain production and 61% did not have the resources necessary to become self-sufficient. 93% of the respondents have the ability to become self-sufficient in forage production. A test of proportions reveals a significant difference between producers with and without the ability to become feed self-sufficient (Table 38).

The most important use of feed grains for Nova Scotia producers is for use as a crop rotation. The second most

important use is for on-farm feed and the third is to obtain a source of straw. There is a visible difference between the importance dairy, beef and sheep place on a source of straw compared to poultry and hogs who did not consider it to be important. Use of grain as a cash crop was not considered important by any commodity (Table 39). There is no significant difference between the top three selections of grain use using a test of proportions at the 0.05 level. For further information see Tables 71 through 73 in Appendix-E.

Table 38. Percent Grain and Forage Produced by Ability to Become Self-Sufficient in Grain and Forage (% of Respondents)

% Grain Grown	Grain		Forage	
	Yes	No	Yes	No
0% (n=125)	22.0	78.0	87.6	12.4
1-49% (n=78)	22.5	77.5	96.1	3.9
50-75% (n=26)	61.5	38.5	92.3	7.7
75-100% (n=54)	88.9	11.1	98.1	1.9
(Total) (n=284)	38.5	61.5*	92.3*	7.7
% Forage Grown				
0% (n=15)	0	100.0	25.0	75.0
1-49% (n=3)	0	100.0	33.3	66.7
50-75% (n=6)	50.0	50.0	100.0	0
75-100% (n=253)	41.6	58.4	93.4	3.0
(Total) (n=285)	38.9	61.1*	93.4*	6.6

(* = significant at 0.05)

Table 39. Importance of Grain Use by Commodity

Grain Use	(n=108) Dairy	(n=34) Poultry	(n=67) Beef	(n=32) Hogs	(n=19) Sheep	(n=267) Prov.
Cash Crop	1.9	2.7	2.3	2.5	2.0	2.2
Crop Rotat.	4.1	4.0	3.9	3.4	3.8	4.4
Use on Farm	4.1	3.3	4.5	4.1	4.1	4.2
Under seed	3.6	2.6	3.7	2.5	3.4	3.3
Straw	2.8	3.6	4.5	2.9	3.6	3.7

(*Note: Average score: 1= not important, 5= very important)

Producers interested in increasing their grain production considered on farm use of the grain to be the most important use of grain, crop rotation as second and a source of straw as third most important (Table 40). Grain use as a cash crop again rated very low. Even those producers not interested in increasing current production levels of feed grains considered the same factors to be important.

Table 40. Importance of Grain Use by Interest in Increasing Grain Production

Grain Use	Interest in Increasing Grain Production	
	Yes	No
Cash Crop (n=193)	2.4	2.1
Crop Rotat. (n=213)	4.2	3.9
Use on Farm (n=229)	4.6	3.7
Underseed (n=214)	3.3	3.3
Straw (n=221)	3.9	3.4

(*Note: Average Score: 1= not important, 5= very important)

In Tables 41 to 44 it can be seen that with the exception of hogs and poultry there is a significant difference between the number of producers interested in increasing forage production and those who are not. There are no significant differences between the number of producers interested in increasing their grain production levels and those not interested, with the exception of producers with a gross income between \$100,000 and \$250,000 per year and producers with an education level of grade school or less.

Table 41. Commodity by Interest in Increasing Current Production (% of Respondents)

Commodity	Increased Grain		Increased Forage	
	Yes	No	Yes	No
Dairy (n=145)	46.8	53.2	77.0*	23.0
Poultry (n=41)	40.0	60.0	46.3	53.7
Beef (n=85)	44.6	55.4	69.0*	31.0
Hogs (n=39)	50.0	50.0	52.5	47.5
Sheep (n=35)	54.3	45.7	62.9*	37.1
Province (n=354)	47.0	53.0	67.3*	32.7

Table 42. Gross Farm Income by Interest in Increasing Current Production (% of Respondents)

Gross Farm \$	Increased Grain		Increased Forage	
	Yes	No	Yes	No
<\$50,000 (n=110)	50.0	50.0	66.1*	33.9
50-100,000 (n=44)	46.5	53.5	73.3*	26.7
100-250,000 (n=90)	40.9	59.1*	73.1*	26.9
>\$250,000 (n=102)	53.0	47.0	63.1*	36.9

(* = significant at 0.05 level)

Table 43. Education (farm operator) by Interest in Increasing Current Production (% of Respondents)

Education	Increased Grain		Increased Forage	
	Yes	No	Yes	No
Grade School (n=43)	29.3	70.7*	65.9*	34.1
High School (n=168)	48.2	51.8	69.6*	30.4
Coll./Univ. (n=139)	51.5	48.5	64.2*	35.8

(* = significant at 0.05 level)

Table 44. Percent Non-Farm Income by Interest in Increasing Current Production (% of Respondents)

% Non-Farm \$	Increased Grain		Increased Forage	
	Yes	No	Yes	No
0% (n=132)	48.0	52.0	70.1*	29.9
1-49% (n=109)	51.4	48.6	64.9*	35.1
50-74% (n=42)	40.5	59.5	62.8*	37.2
>75% (n=63)	41.3	58.7	68.8*	31.2

(* = significant at 0.05 level)

From the producers interested in increasing grain and forage production, increasing yields per acre was the most preferred method of accomplishing an increase. Of the methods selected to increase grain production there is no significant difference between the first choice and the second which is increasing the number of acres of grain or

use of superior varieties. There is however a significant difference between the second most preferred method of increasing grain production and the third choice of more intensive production practices (Table 45).

For those respondents interested in increasing their forage production there is a significant difference between the most preferred method and the other methods. Forage producers least preferred increasing their acreage as a means to increasing their forage production.

Table 45. Method of Increasing Production by Interest in Increasing Grain and Forage Production
(% of Respondents)

Method of Increasing	(n=150) Grain	(n=229) Forage
Incr. Yield per Acre	34.8	55.8*
Increase Acreage	29.8*	24.5
More Intensive Prod.	19.9	36.8*
Superior Varieties	29.9*	41.2

(* = significant at 0.05)

Twenty eight percent of the respondents selected crop price as the most important limiting factor to increasing grain production. This is significantly higher than the second choice of input costs and the third most limiting factor which is limited land base which were selected by 17% and 15% of the respondents respectively. Of the least importance to respondents were processing facilities,

availability of expertise and environmental considerations. From the provincial ratings of each of the limiting factors the top three choices were input costs, climatic conditions and crop prices. Using the Spearman Rank Correlation test there was no significant differences between the provincial rankings and those selected by the respondents (Table 46).

The most important limiting factors for increasing forage production are the same as for grain production with 19.6% saying input costs, 18.6% selecting climatic conditions and 16.4% choosing crop prices. Provincially the respondents rated input costs as the most important limiting factor to increased forage production with soil characteristics as second and past experience as third. Again there was no significant differences when tested at a significance level of 0.05 using the Spearman Rank test (Table 47).

Table 46. Limiting Factors of Increased Grain Production by Commodity

Limiting Fact.	(n=103) Dairy	(n=26) Poultry	(n=73) Beef	(n=31) Hogs	(n=21) Sheep	(n=250) Prov.
Crop Prices	3.9	3.9	3.6	4.0	3.3	3.8
Limited Land	3.0	3.6	3.5	3.5	2.8	3.2
Soil Charact.	3.7	3.6	3.7	3.6	3.8	3.7
Climate Cond.	4.0	3.6	4.0	3.8	4.1	3.9
Available Equip.	3.5	3.7	3.9	3.4	4.1	3.1
Storage Fac.	3.7	3.9	4.1	3.2	3.7	3.7
Available Expert.	3.3	3.2	3.5	3.5	3.3	3.4
Input Costs	4.1	3.8	3.7	4.2	4.4	4.2
Weed/Disease	3.8	3.8	3.9	3.8	3.5	3.8
Past Exp.	3.7	3.6	3.8	3.8	3.5	3.7
Custom Oper.	3.2	3.4	3.7	2.8	4.1	3.4
Proc. Facil.	3.2.	3.5	3.2	2.8	2.5	2.1
Envir. Consid.	3.3	3.6	3.5	3.2	3.0	3.3

(*Note: Average score: 1= not important, 5= very important)

Table 47. Limiting Factors of Increased Forage Production by Commodity

Limiting Factors	(n=125) Dairy	(n=27) Poultry	(n=70) Beef	(n=27) Hogs	(n=23) Sheep	(n=280) Prov.
Crop Prices	2.8	3.2	3.2	3.2	3.0	3.1
Limited Land	2.9	2.9	3.4	3.1	3.4	2.7
Soil Charact.	3.9	3.3	4.0	3.4	3.8	3.8
Climate Cond.	4.2	3.6	4.4	3.5	3.6	3.6
Available Equip.	3.2	2.6	3.6	2.9	3.7	3.2
Storage Fac.	3.6	2.9	4.1	3.3	3.6	3.6
Avail. Expert.	3.3	2.6	3.1	3.4	3.1	3.2
Input Costs	4.2	3.7	4.6	3.9	4.4	4.2
Weed/Disease	3.6	3.3	3.6	3.2	2.9	3.5
Past Exp.	3.9	3.2	2.5	3.5	3.4	3.8
Custom Oper.	2.3	1.9	2.1	2.3	2.4	2.3
Envir. Consid.	3.2	2.7	3.6	3.0	2.6	3.2

(*Note: Average score: 1= not important, 5= very important)

The most limiting factors of increased grain production as determined by respondents with the ability to be self-sufficient in grain production are; first, input costs; second, crop prices and the third most limiting factor is climatic conditions. For those who do not have the ability

to be self-sufficient in grain production the top three limiting factors they selected are; input costs, climatic conditions and weeds/diseases. The least important factors for the respondents with the ability to become self-sufficient in grain production are limited landbase and the availability of processing facilities (Table 48).

The limiting factors of increased forage production which are considered to be most important by forage producers with the ability to become self-sufficient in forage production are; input costs, climatic conditions and past experience. The availability of custom operators is of least importance to forage producers. (See Appendix - E, Table 74.)

Table 48. Importance of Limiting Factors of Increased Grain Production by Ability to Become Feed Self-Sufficient in Grain

Limiting Factor	Grain	
	(n=89) Yes	(n=112) No
Crop Prices	3.7	3.8
Limited Land	2.9	3.6
Soil Characteristics	3.6	3.7
Climate Conditions	3.7	4.1
Available Equipment	3.5	3.7
Storage Facilities	3.5	3.8
Avail. Expert.	3.2	3.4
Input Costs	4.2	4.3
Weed/Disease	3.5	4.0
Past Exp.	3.7	3.7
Custom Oper.	3.3	3.6
Proc. Facil.	2.7	3.4
Envir. Consid.	3.2	3.8

(*Note: Average score: 1= not important, 5= very important)

Table 49 shows the importance of limiting factors of increased grain production as determined by those producers either for or against a financial incentive program to increase grain production. Those for an incentive program rated input costs as the most important limiting factor. The least important factor is past experience.

Table 49. Limiting Factors of Increased Grain Production by Financial Incentive Program Required

Limiting Factor	Financial Incentive Required	
	Yes	No
Crop Prices	4.0	2.2
Limited Land	3.1	2.3
Soil Characteristics	3.8	3.4
Climatic Conditions	4.0	3.8
Available Equipment	3.6	3.3
Storage Facilities	4.0	3.4
Avail. Expert.	3.5	3.3
Input Costs	4.5	2.9
Weed/Disease	4.0	3.5
Past Exp.	2.8	3.5
Custom Oper.	3.3	3.5
Proc. Facil.	3.2	2.9
Envir. Consid.	3.4	3.2

(*Note: Average score: 1= not important, 5= very important)

The respondents who are not in support of a financial incentive program to increase grain production rated climatic conditions as the most limiting factor to increased grain production. The least important factors are input costs, crop prices and limited landbase (Table 49).

Using a test of proportions at a significance level of 0.05 there was no difference between producers with the ability to be grain self-sufficient requiring an incentive program and those without the ability to be self-sufficient. For those producers not requiring a financial incentive program, there is a significantly higher number of producers without the ability to become feed self-sufficient (Table 50).

Table 50. Ability to Become Self-Sufficient in Grain by Financial Incentive Program Required to Increase Production (% of Respondents)

Incentive Required	Ability to be Self Sufficient in Grain	
	Yes	No
Yes (n=157)	49.0	51.0
No (n=142)	33.1	66.9*

(* = significant)

Between the various commodity groups the dairy, poultry and hog producers do not have the ability to become self-sufficient in feed grain production. The sheep and beef producers feel they can be self-sufficient in feed grains.

All of the commodities feel they can be self-sufficient in forage production (Table 51).

Table 51. Commodity by Ability to Become Feed Self-Sufficient (% of Respondents)

Commodity	Grain		Forage	
	Yes	No	Yes	No
Dairy (n=141)	32.1	67.9*	96.2*	2.8
Poultry (n=39)	9.9	90.9*	82.9*	17.1
Beef (n=80)	61.8*	38.2	90.5*	9.5
Hogs (n=36)	13.2	86.8*	79.4*	20.6
Sheep (n=34)	62.9*	37.1	94.1*	5.9
Province (n=339)	37.7	61.3*	92.1*	7.9

Table 52 reveals that a significantly higher number of producers over \$100,000 in gross farm income do not have the ability to become feed grain self-sufficient while a larger proportion of those under \$100,000 per year do have. In all of the various categories a significantly higher number of producers feel self-sufficiency in forage production is obtainable.

Also in Table 75 (Appendix-E) it can be seen that a significant number of producers in all education categories do not feel grain self-sufficiency is obtainable on their farm as well as those producers without any source of non-farm income (Table 76 Appendix-E).

Table 52. Gross Farm Income by Ability to Become Feed Self-Sufficient (% of Respondents)

Gross Farm \$	Grain		Forage	
	Yes	No	Yes	No
<\$50,000 (n=110)	56.4	43.6	87.7*	12.3
50-100,000 (n=44)	58.5	41.5	97.7*	2.3
100-250,000 (n=91)	32.9	67.1*	88.3*	2.2
>\$250,000 (n=102)	16.0	84.0*	88.3*	11.7

(* = significant at 0.05)

When asked if a financial incentive program is required in order to increase feed grain production, 50% of the respondents said an incentive program is not required. The only significant difference found between the various commodities was with the sheep producers. 62% of them said an incentive program was required to increase their feed grain production (Table 53).

Table 53. Commodity by Incentive Program Required to Become Feed Self-Sufficient (% of Respondents)

Commodity	Grain	
	Yes	No
Dairy (n=137)	51.1	48.9
Poultry (n=39)	46.2	53.8
Beef (n=80)	43.8	56.2
Hogs (n=36)	52.8	47.2
Sheep (n=32)	62.5*	37.5
Province (n=341)	50.2	49.8

For those respondents who felt a financial incentive program was required to increase feed grain production they were asked to select the type of incentive program they most preferred. An incentive on facilities was most preferred with an incentive on equipment as second and an incentive on input costs as the third most preferred (Table 54). At a level of significance of 0.05 using a Spearman Rank Correlation test there was perfect agreement between the provincial rankings and the sheep producers. There was not a significant relationship between the provincial rankings and the other commodities. Between the province and the hog producers there was nearly perfect disagreement in the rankings.

Table 54. Type of Incentive Program Preferred by Commodity

Incentive Type	(n=57) Dairy	(n=12) Poultry	(n=27) Beef	(n=15) Hogs	(n=12) Sheep	(n=125) Province
Inc. per Acre	3.6	3.1	4.4	3.3	4.2	3.7
Inc. on Facil.	4.4	3.9	4.5	3.2	4.0	4.3
Inc. on Equipmt.	4.0	3.4	4.4	3.7	4.3	4.0
Inc. on Inputs	3.7	3.6	3.7	3.9	4.2	3.8
Inc. per Bushel	3.7	3.4	3.5	4.5	3.0	3.6

(*Note: Average score: 1= not important, 5= very important)

Producers Comments

Throughout the survey questionnaire the producers were asked to add any comments they may have in order to further clarify their answers or supply additional information to improve the quality of this report. The following section is a summary of the comments made by producers and questions they have asked with regard to this project. I feel they are an important part of this project and help to establish the position being taken by the various commodities surveyed.

The comments are arranged by commodity and mainly fall under three topic areas being; reasons for not wanting to increase grain production, subsidies, and general comments.

POULTRY:Grain Production

- the large quantities of grain being consumed make feed self-sufficiency unrealistic.
- limited landbase in both quantity and quality.
- growing grain is not economically feasible.
- can purchase feed grains cheaper than it can be produced in this region.
- equipment prices are too high to justify expenses.

Subsidies

- increase the F.F.A. instead of offering money to grow grain.
- do not use subsidies to make growing grain economically feasible.

General

- is grain self sufficiency in N.S. logical in this day of global marketing?

HOGS:Grain Production

- limited landbase.
- must be able to produce it cheaper than we can purchase it.

- should concentrate on forages rather than grain.
- only use grain as a rotation crop.
- input costs are too high.

Subsidies

- why not put the money into transportation costs rather than grain production? It would be better used.

General

- research plots have to go to the next step and demonstrate the results on a field scale using the same inputs a "regular" farmer has excess to.

SHEEP:

Grain Production

- the price must stabilize and be high enough to pay for the input costs.
- pasture and forages are more important and more economical so we should concentrate our efforts in these areas.
- use grain only for a crop rotation.

General

- need to establish demonstration farms which apply the research and provide leadership to the farm community.

- need more follow-up on seminars and technical information in order to implement changes successfully.
- need more on-farm trials.

BEEF:Grain Production

- with the low prices for beef we cannot justify feeding grain.
- not profitable to grow grain for a cash crop and cannot afford to feed it.
- pasture and hay is more important.
- need new varieties.
- use as a crop rotation only.
- why not do what we do best, grow grass!

Subsidies

- incentives are not the answer to growing grain. Economic conditions on the world market must be considered.

General

- many of the beef producers made the comment that they were too old to start worrying about producing grain.

DAIRY:Grain Production

- input costs are too high so grain production is not practical.

- more convenient and cheaper to buy grain.
- equipment costs and interest rates are too high.
- climate, soil characteristics and available varieties are all against production in most parts of Nova Scotia.
- forages and corn silage are better utilizing available resources.

Subsidies

- there are more important areas to spend money on such as drainage research, or forage varieties.
- maintain the F.F.A. and pay it to producers for local grains as well as imported grains.
- why not support the western producers who can ship their grain to us cheaper than we can grow it, pay them the difference.
- time to seriously look at policies and subsidies because so far nothing has changed, something is wrong.

General

- need to look at Canada as a whole and support the industries we have available to us.

Chapter Five

Conclusions and Recommendations

The objectives set forth at the beginning of this project were to: (1) determine the information sources important to Nova Scotia livestock and feed producers and the role of the Extension Services Division of the Nova Scotia Dept of Agriculture and Marketing in the transfer of feed production information, (2) establish the views and attitudes of feed producers towards the goal of feed self-sufficiency in the province and, (3) to provide data with regard to a direction for the livestock feed industry to be used in future policy formulation.

The farms surveyed for this project provided a representative sample of livestock and feed producers. Although the response rate was lower than anticipated for individual commodities the provincial return rate was very high. This number provides an accuracy of 5% at a confidence level of 95%.

From the data provided, beef and sheep producers made up a significant proportion of the lower income category (less than \$50,000 per year) and beef producers had the lowest overall education level as compared to other commodities. Beef and sheep producers also earned a major proportion of their income from non-farm sources.

From these statistics it can be seen that the majority of the beef and sheep operations in the province are part-time and that they depend on an outside income for a "living". The poultry, hog and dairy operations on the other hand were full-time farms with little or no outside income. In the higher income groups and commodities with higher incomes it was also noted that the farm operators were better educated.

From the production statistics presented for the years 1985 to 1989 there has been an increase in the poultry industries while the dairy, beef and hog industries remained relatively stable. The sheep industry has experienced a decline of 12% during this same period.

Looking at the grain production data, Nova Scotia has experienced an increase of 10% in feed production along with an increase of 35% in feed consumption. The net result is a decline in feed self-sufficiency and an increase of imported feed grains.

Although the number of dairy cows and hogs have not increased during this time period the volume of product being supplied has increased. The provincial milk production average per cow has increased by nearly 1500 pounds per year and there has been an increase in carcass yield and carcass quality for hogs. These more intensive production practices have increased the consumption of feed grains in these industries. The poultry industry has been a major consumer

of imported feed grains and this industry has expanded substantially over the past five years.

In 1986 the Atlantic Livestock Feed Initiative (ALFI) program was introduced to encourage producers to increase their production of feed grains. This program was also initiated to provide support for the Maritime Farmers Council (MFC) Feed Sufficiency Strategy. From the data provided, to date over 60% of the funding has been directed toward forage production and less than 30% has been spent on cereal and protein crops. Also as part of the expenditures for cereals is included monies for milling wheat production and oilseed crops. Feed grain and protein crop production is estimated to account for three-quarters of the money spent on cereals. As seen from the production statistics there has not been a definite move towards increased feed grain production. In order to maintain our present level of self-sufficiency (16.3%) with an annual increase in consumption of 5%, there needs to be an additional 15,000 to 20,000 tonnes produced annually. There has not been the necessary increases in production to support the growing demand for feed grains even though there are policies to support grain production.

Due to the lack of response to increasing feed grain production and the positive response to increasing forage production and quality, as well as increased forage facilities and technologies, it is concluded that producers

feel their time and money is best spent on forages rather than cereals. For the dairy, beef and sheep producers, increased forage production and quality should reduce the required amounts of feed grains although this has not been evident from the consumption statistics.

Programs and policies to encourage forage utilization and increased forage efficiency should be considered to decrease the dependency of the dairy, beef and sheep industries on imported feed grains. Research is also required to determine the economics of increased forage usage which may correlate with a decrease in production units (ie. milk production or lbs of gain per day) as well as a decrease in production costs. The net return of the producer should be the priority rather than maintaining the global production averages.

The present feed initiative policy is not persuading all farmers to develop a feed grain industry which is not economically viable. For the 50% of producers who do not support the Feed Sufficiency Strategy the current programs and funding does not supply the same incentive toward feed self-sufficiency as for those producers who support the Strategy. The future direction of policy and program needs of the livestock producers must be carefully examined to ensure that they are working toward a common goal. The Maritime Farmers Council objectives do not appear to be representative of the majority of Nova Scotia producers.

The role of Extension in the information transfer process has been determined to be a very important one. The data indicates the services provided by the Extension Division were rated very important and overall the producers were very satisfied with those services.

The general nature of the questions asked with respect to feed information sources made it difficult for the producer to distinguish between the type of information being provided and the source. The sources as indicated in this report only reflect the final source without regard for the originating source. Also the source of information is often determined by the type of information required and the frequency it is required. Another factor which will influence the source and type of information required is the stage of adoption of the producer. The information required at the awareness stage will be different from that required at the adoption stage. For the purposes of this report the information sources as determined by the producers will provide extension agents with a more effective method of delivery regardless of the originating source. In order to evaluate the importance of originating sources of information a detailed study would be required which traced specific information from the source to the end user.

Producers selected the soils and crops specialist and the agricultural representative as the second and third most important sources of feed production information. The first

choice of information was magazines and newspapers. In this time of information overload perhaps extension should carefully select appropriate print media as a means to follow-up on information sessions and to provide producers with timely and appropriate production information. An effort must also be made by Extension to contact those producers who do not presently use them as a source of information.

The types of information most important to producers for grain production were weather forecasts and government policy. With the weather forecasting technology available today perhaps a comprehensive farm weather forecast phone service should be available for producers throughout the province. Government policy was selected as the second most important type of information producers wanted. It is important that the extension services keep the farmers up to date on the available programs as well as assist them to select the appropriate policy for their operation and future plans.

The least important type of information selected by respondents was daily market information. Extension must provide leadership to illustrate the importance of marketing and the role of the producer in a marketing strategy. For the dairy, hog and poultry producers marketing is less of a concern because of the marketing systems they have in place. For the beef and sheep industries marketing systems have yet

to be developed in the province and producers must take an active role in creating such a system.

Producers were not very satisfied with the application of crop production research to their area. Efforts must be increased to validate the research findings through the use of on-farm trials and demonstration farms. These efforts can be complimented through local information meetings, extension calls and community tours. These were the most preferred methods of receiving information.

Another suggestion made was that all branches of Extension Services dealing with livestock, soils and crops, engineering and agricultural services combine their efforts and work cooperatively in order to provide a clear direction and leadership into the future. Research priorities, producer interests and extension efforts must be complimenting each other in order to achieve this goal.

From the results it can be seen that a significant number of the dairy, sheep, poultry, and hog producers produce less than 50% of their own feed grains and a significant portion of the poultry producers grow none of their feed grain inputs. Not only do they presently produce very little of the grain they consume, but they do not have the ability or any interest in increasing feed grain production on their farms. The most important use producers have for grain is as a rotational crop for their forages.

The use of grain as a cash crop was not considered important at all.

The most limiting factors of increased grain production selected by the respondents were input costs, crop prices and limited landbase. The largest grain users, hogs and poultry, are also the most restricted producers of feed grains due to their limited landbase. The dairy producers all though not as restricted by landbase felt crop prices and input costs did not make it feasible to increase current production levels of grain.

For many of the questions the data was inconclusive due to the close rankings of factors which influenced producers from increasing their grain production. The structure of the questionnaire and questions need to force decisions to be made rather than allowing general answers to be provided. The more specific the questions the better the results will be.

When asked if an incentive program was required to encourage further production of grain, 50% of the producers said no. Many of the comments made by various feed producers strongly suggested that when the time was right and it was economical to produce grain rather than import it, nothing else would be required.

In conclusion, the two research hypotheses set forth at the beginning of this project have been supported. (1) The Extension Services Division of the Nova Scotia Department of

Agriculture and Marketing play an important role in the provision of feed production information to Nova Scotia livestock and feed producers and (2) that Nova Scotia livestock and feed producers do not support the Feed Sufficiency Strategy objectives set out by the Maritime Farmers Council in 1984.

A final note would suggest that when the economic conditions for increased feed grain production are favourable for Nova Scotia producers, then and only then will the producers be willing to increase their grain production by the required amounts. At the present time there is enough profit from the dairy, hogs and poultry industries to allow imported feed grain to be a part of the farm operation. Until this situation changes feed grain self-sufficiency will not be a practical alternative.

Recommendations

To conclude this report a few recommendations will be made based upon the information gathered through this project. These recommendations are in no way exclusive of other suggestions or future projects which could be initiated from this report.

The first recommendation would be to complete a similar project in the provinces of New Brunswick and Prince Edward Island to determine the attitudes and opinions of those

livestock and feed producers toward the Feed Sufficiency Strategy objectives.

To increase the reliability of the data and to provide further insight into the producers questionnaire replies it is suggested that an interview be conducted prior to the mail-out survey questionnaire. Also the questions need to be further defined in order to provide more conclusive results. A closer examination of the producers stage of adoption and the originating sources of information should be considered in the analysis of information sources.

An examination of other provincial or countries feed production programs may provide valuable insight into the long term benefits of a feed initiative program such as the one in Nova Scotia. The results of this study could provide a basis for future program development.

Another recommendation would be to complete an economic analysis of increased forage utilization and decreased grain use in the dairy, beef and sheep sectors. The analysis must consider the net return rather than production statistics.

The incorporation of farmer input into policy formulation will ensure a higher level of acceptance for future feed initiative programs. Based on the results, the objectives of the Strategy should express the producers interests and provide a clear direction for extension and industry to use in future program planning.

The information provided in this report be used to assist in future policy and program direction for the livestock and feed producers in the province. The importance of this study is reflected in the high % of producers requesting a copy of the results and their opinions and concerns have been expressed throughout the report.

A final recommendation is to continue to provide feed production information and services with regard to increased feed production to ensure the producers are ready and able to produce feed grains should the economic conditions change.

Bibliography

Alberta Agriculture. 1983. Information Needs of Alberta Farmers and Farm Families. Planning Secretariat, Edmonton, Alberta.

Andrew, R.G. 1987. An Evaluation of Beef Production Alternatives in Atlantic Canada. M. Sc. Thesis. Dept. of Rural Economy. University of Alberta. Edmonton, Alberta.

Baily, K.D. 1978. Methods of Social Research. The Free Press, MacMillan Inc. New York.

Blackburn, D.J. (ed.) 1988. Foundations and Changing Practices in Extension. University of Guelph. Ontario.

Blackburn, D.J. 1986. Information Systems: Current Assessment and Future Needs. A.I.C. Conference. Saskatoon.

Blackburn, D.J. (ed.) 1984. Extension Handbook. University of Guelph. Ontario.

Blackburn, D.J. et.al. 1983. Farm Information Sources Important to Ontario Farmers. Ontario Agricultural College, University of Guelph. Ontario.

Dillman, D. 1978. Mail and Telephone Surveys. MacMillan Inc. New York.

Gamache, P.M. 1990. Appropriate Technology: Education and the Oxford Farmers' Brigade in Nicaragua. M.Ag. Dept. of Rural Economy. University of Alberta. Edmonton, Alberta.

Loether, H.J. and McTavish, D.G. 1974. Descriptive Statistics for Sociologists. Allyn and Bacon Inc. Boston.

Luck, D.J. et.al. 1978. Marketing Research: Fifth Edition. Prentice-Hall Inc. Englewood Cliffs, N.J.

Maritime Farmers Council. (MFC) 1985. Feed Sufficiency Strategy. Unpublished Document.

Mueller, J.H.; Schuessler, K.F. and Costner, H.L. 1977. Statistical Reasoning in Sociology. Houghton Mifflin Co. Boston.

Norusis, M.J. 1986. The SPSS Guide Data Analysis. SPSS Inc. Chicago.

Nova Scotia Department of Agriculture and Marketing. 1989. Agricultural Statistics. N.S. Government Printing Services.

N.S. Department of Agriculture and Marketing. 1986. Atlantic Livestock Feed Initiative: Policy Guidelines. Unpublished Document.

Osburn, D.D. and Schneeberger, K.C. 1983. Modern Agricultural Management: A Systems Approach to Farming. Reston Publishing Inc. Virginia.

Paddock, Brian; Daoust, Albert and Andrusiak, Gordon. 1986. An Analysis of the Feed Freight Assistance Program. Marketing and Economics Branch. Agriculture Canada.

Rogers, E.M. 1983. Diffusion and Innovation. Third Edition. The Free Press, Collier-MacMillan Ltd. New York.

Swanson, B.E. (ed.) 1984. Agricultural Extension: A Reference Manual. Food and Agriculture Organization. Rome.

Witkowski, E. and Wells, A. 1979. The Economics of Agricultural Production. Alfred Publishing Inc. California.

Appendix - A

Nova Scotia

Department of
Agriculture and Marketing

Farm Management

Fact Sheet

1988-106

COST OF PRODUCTION: WHEAT

125.821

This factsheet is intended to be an estimate of the cost of

producing wheat. Machinery and cultural operations will differ
from farm to farm as will the costs associated with these.

In preparing this factsheet, certain assumptions were made :

ASSUMPTIONS

1. This farm consists of 125 hectares of wheat on a 150 hectare farm.
2. The average yield per hectare is 3.5 tonne.
3. The labour rate per hour is \$ 7.00.
4. The interest rate per annum on operating capital is 12.0 %.
5. The custom rate for lime spreading is \$ 20.50 per tonne, including materials.
6. The average age of machinery & equipment is 5 years.
7. The crop is dried from 18 to 14.5% moisture at a \$ 14.99 per tonne, including handling costs.

The budget software used to produce this budget is available for use through your local Farm Management Specialist. It requires an IBM - compatible computer and the program Lotus 1-2-3 (release 2 or later) as well as 640 K memory.

FIXED COSTS ASSOCIATED WITH MACHINERY

Machinery Description		Replacement Cost	Crop Hours	Depr. \$/hect.	Ins/Hous. \$/hect.	Repairs \$/hect	Interest \$/hect
Fertilizer Spreader	1400 lb	1,800	45	0.34	0.26	0.10	0.51
Field Cultivator	14 ft	10,000	100	2.12	1.09	3.28	3.18
Grain Drill	12 ft	9,200	76	2.34	1.14	1.62	3.52
Plow	4 bottom	7,000	134	1.72	0.75	3.30	2.58
Roller	12 ft	2,500	59	0.64	1.49	0.27	0.96
Sprayer - 3-point hitch		2,400	48	0.59	0.50	0.19	0.88
Storage Bins @ 5000 bu.	(4)	40,000		6.91	1.04	6.72	20.74
Tractor 2 WD	65 HP	35,000	211	3.65	1.53	3.54	11.82
Tractor 2 WD	85 HP	45,000	369	6.08	2.20	9.30	19.72
Wagon	(2)	20,000	118	9.52	5.37	3.96	14.28
TOTAL FIXED COSTS PER HECTARE				\$33.90	\$15.36	\$32.30	\$78.18

Example Calculations

=====

Depreciation:

1. TOTAL YEARLY DEPRECIATION is calculated by multiplying the replacement price by a replacement factor** times the depreciation rate**.

E.g.: Tractor : $(\$45,000 \times 0.527) \times 0.037 = \877.46 .

2. PER HOUR: Total depreciation divided by total hours of use.

E.g.: $\$877.46 / 400 = \2.19 .

3. PER HECTARE: (Hourly depreciation multiplied by no. of crop hours) divided by crop hectareage.

E.g.: $(\$7.44 \times 400) / 125 = \7.02 .

Insurance & Housing:

1. TOTAL YEARLY INSURANCE & HOUSING is calculated by (multiplying the replacement price by a replacement factor times the insurance rate) plus (the storage space required multiplied by the annual cost per square feet)

E.g.: $[(\$45,000 \times 0.527) \times \$6/1000] + (175 \times \$1.00) = \317.20 .

Repairs & Maintenance:

1. PER HOUR COSTS are calculated by multiplying replacement price per thousand by the repair rate**.

E.g.: $(\$45,000 / 1000) \times 0.07 = \3.15 .

Interest:

1. TOTAL YEARLY INTEREST is calculated by multiplying the replacement price by the replacement factor times the interest rate per year.

E.g.: $(\$45,000 \times 0.527) \times 12 / 100 = \2845.80 .

**Note: The replacement factor, depreciation rate and the repair rate varies with the age of the machine and the hours used. The factor tables are available from the Farm Management office.

VARIABLE COSTS

1. Cultural Operations

Operation	Hours/ hectare	Times Performed	Horsepower Required	Labour Costs	Fuel & Lub. Costs	Total
Plowing	1.07	1	85	7.49	8.41	15.90
Cultivating	0.40	2	85	5.60	6.28	11.88
Fertilizing	0.36	1	65	2.52	2.16	4.68
Seeding	0.61	1	85	4.27	4.79	9.06
Rolling	0.47	1	65	3.29	2.82	6.11
Spraying	0.38	1	65	2.66	2.28	4.94
Lime - Custom Spread						16.81

 Total Costs for Cultural Operations 25.83 26.75 \$69.39
 =====

2. Material Inputs

Description	Price /Unit	Amount Used	Total
17-17-17 A/N	321.50 tonne	0.4	128.60
Certified Wheat Seed	0.50 kg	120	60.00
MCPA Amine 500	4.57 litre	1.68	7.68

 Total Cost for Material Inputs \$196.28
 =====

3. Harvesting

Operation	Hours/ hectare	Horsepower Required	Labour Costs	Fuel & Lub. Costs	Total
Hauling	0.47	65	3.29	2.82	6.11
Hauling	0.47	85	3.29	3.69	6.98
Combining - Custom					75.00
Drying					52.47

 Total Costs for Harvesting 6.58 6.52 \$140.57
 =====

4. Cash Overhead Costs

Interest on Production Costs (Cultural + Material + Harvest)
 12.0 % for 5 months = \$20.31

 TOTAL VARIABLE COSTS PER HECTARE \$426.54
 =====

PRODUCTION SUMMARY

TOTAL VARIABLE COSTS (page 2)	\$426.54
Fixed Costs	
Machinery (page 1)	\$159.74
Land Interest	
(Interest on land @ 8%, Land value \$1400/ha)	112.00

TOTAL FIXED COSTS	271.74

TOTAL COST TO GROW, HARVEST AND STORE ONE HECTARE OF WHEAT	\$698.28
	=====
TOTAL COST TO GROW, HARVEST AND STORE ONE TONNE OF WHEAT BASED ON A YIELD OF 3.5 TONNE (85.5% D.M.) PER HECTARE	

Variable Costs	121.87
Fixed Costs	77.64

Total Costs	\$199.51
	=====

IMPACT OF WHEAT YIELD (85.5% D.M.) ON PER TONNE COSTS

Yield/ha	2.5	3.0	3.5	4.0	4.5
Cost per tonne	-----	-----	-----	-----	-----
Variable	170.62	142.18	121.87	106.64	94.79
Fixed	108.70	90.58	77.64	67.93	60.39
Total	279.31	232.76	199.51	174.57	155.17

This budget is intended to be used as a guide to production costs for this crop in Nova Scotia. It is intended to be used as a guide, for planning purposes. Farmers are encouraged to develop their own budgets based on the conditions on their own farm. This budget can act as a guide in identifying the cost items which can be considered. Please note that, in this budget, all labour is expensed.

Further information on crop budgeting can be obtained from the Farm Management Division of the Nova Scotia Department of Agriculture and Marketing. Division offices are located in Truro (895-1571, Ext. 328) or Kentville (678-7365).

This budget utilizes the traditional ("non-intensive") approach to cereal management. Look at Factsheet #88-109 or #88-108 for more intensive management systems.

Prepared by: S. Steeves and G. Comeau

December, 1988



Farm Management

Fact Sheet

1988-105

COST OF PRODUCTION: OATS

125.821

This factsheet is intended to be an estimate of the cost of

producing oats. Machinery and cultural operations will differ
from farm to farm as will the costs associated with these.

In preparing this factsheet, certain assumptions were made :

ASSUMPTIONS

1. This farm consists of 125 hectares of oats on a 150 hectare farm.
2. The average yield per hectare is 2.5 tonne.
3. The labour rate per hour is \$ 7.00.
4. The interest rate per annum on operating capital is 12.0 %.
5. The custom rate for lime spreading is \$ 20.50 per tonne, including materials.
6. The average age of machinery & equipment is 5 years.
7. The crop is dried from 16 to 14% moisture at a \$ 12.66 per tonne, including handling costs.

The budget software used to produce this budget is available for use through your local Farm Management Specialist. It requires an IBM - compatible computer and the program Lotus 1-2-3 (release 2 or later) as well as 640 K memory.

FIXED COSTS ASSOCIATED WITH MACHINERY

Machinery Description	Replacement Cost	Crop Hours	Depr. \$/hect.	Ins/Hous. \$/hect.	Repairs \$/hect.	Interest \$/hect.
Fertilizer Spreader 1400 lb	1,800	45	0.34	0.26	0.10	0.51
Field Cultivator 14 ft	10,000	100	2.40	1.24	3.28	3.60
Grain Drill 12 ft	9,200	76	2.34	1.14	1.62	3.52
Plow 4 bottom	7,000	134	1.72	0.75	3.30	2.58
Roller 12 ft	2,500	59	0.64	1.01	0.27	0.96
Sprayer - 3-point hitch	2,400	48	0.59	0.50	0.23	0.88
Storage Bins @ 5000 bu. (4)	40,000	300	6.91	1.04	6.72	20.74
Tractor 2 WD 65 HP	35,000	211	4.30	1.80	3.54	13.94
Tractor 2 WD 85 HP	45,000	369	5.46	1.98	9.30	17.72
Wagon (2)	20,000	118	5.89	3.32	3.96	8.83
TOTAL FIXED COSTS PER HECTARE			\$30.59	\$13.03	\$32.34	\$73.27

Example Calculations

=====

Depreciation:

1. TOTAL YEARLY DEPRECIATION is calculated by multiplying the replacement price by a replacement factor** times the depreciation rate**.

E.g.: Tractor : $(\$45,000 * 0.527) * 0.037 = \877.46 .

2. PER HOUR: Total depreciation divided by total hours of use.

E.g.: $\$877.46 / 400 = \$ 2.19$.

3. PER HECTARE: (Hourly depreciation multiplied by no. of crop hours) divided by crop hectareage.

E.g.: $(\$7.44 * 400) / 125 = \7.02 .

Insurance & Housing:

1. TOTAL YEARLY INSURANCE & HOUSING is calculated by (multiplying the replacement price by a replacement factor times the insurance rate) plus (the storage space required multiplied by the annual cost per square feet)

E.g.: $[(\$45,000 * 0.527) * \$6/1000] + (175 * \$1.00) = \317.20 .

Repairs & Maintenance:

1. PER HOUR COSTS are calculated by multiplying replacement price per thousand by the repair rate**.

E.g.: $(\$45,000 / 1000) * 0.07 = \3.15 .

Interest:

1. TOTAL YEARLY INTEREST is calculated by multiplying the replacement price by the replacement factor times the interest rate per year.

E.g.: $(\$45,000 * 0.527) * 12 / 100 = \2845.80 .

**Note: The replacement factor, depreciation rate and the repair rate varies with the age of the machine and the hours used. The factor tables are available from the

VARIABLE COSTS

1. Cultural Operations

Operation	Hours/ hectare	Times Performed	Horsepower Required	Labour Costs	Fuel & Lub. Costs	Total
Plowing	1.07	1	85	7.49	8.41	15.90
Cultivating	0.40	2	85	5.60	6.28	11.88
Fertilizing	0.36	1	65	2.52	2.16	4.68
Seeding	0.61	1	85	4.27	4.79	9.06
Rolling	0.47	1	65	3.29	2.82	6.11
Spraying	0.38	1	65	2.66	2.28	4.94
Lime - Custom Spread						16.81

 Total Costs for Cultural Operations 25.83 26.75 \$69.39
 =====

2. Material Inputs

Description	Price /Unit	Amount Used	Total
17-17-17 A/N	321.50 tonne	0.25	80.38
Certified Oat Seed	0.46 kg	80	36.80
MCPA Amine 500	4.57 litre	1.68	7.68

 Total Cost for Material Inputs \$124.85
 =====

3. Harvesting

Operation	Hours/ hectare	Horsepower Required	Labour Costs	Fuel & Lub. Costs	Total
Hauling	0.47	65	3.29	2.82	6.11
Hauling	0.47	85	3.29	3.69	6.98
Combining - Custom					75.00
Drying					31.65

 Total Costs for Harvesting 6.58 6.52 \$119.75
 =====

4. Cash Overhead Costs

Interest on Production Costs (Cultural + Material + Harvest)
 12.0 % for 5 months = \$15.70

 TOTAL VARIABLE COSTS PER HECTARE \$329.69
 =====

PRODUCTION SUMMARY

TOTAL VARIABLE COSTS (page 2) \$329.69

Fixed Costs

Machinery (page 1) \$149.23

Land Interest
(Interest on land @ 8%, Land value \$1400/ha) 112.00

TOTAL FIXED COSTS 261.23

TOTAL COST TO GROW, HARVEST AND STORE ONE HECTARE
OF OATS \$590.92TOTAL COST TO GROW, HARVEST AND STORE ONE TONNE
OF OATS BASED ON A YIELD OF 2.5 TONNE
(86% D.M.) PER HECTARE

Variable Costs 131.88

Fixed Costs 104.49

Total Costs \$236.37

IMPACT OF OAT YIELD (86% D.M.) ON PER TONNE COSTS

Yield/ha	1.5	2.0	2.5	3.0	3.5
Cost per tonne					
Variable	219.79	164.84	131.88	109.90	94.20
Fixed	174.15	130.61	104.49	87.08	74.64
Total	393.94	295.46	236.37	196.97	168.83

This budget is intended to be used as a guide to production costs for this crop in Nova Scotia. It is intended to be used as a guide, for planning purposes. Farmers are encouraged to develop their own budgets based on the conditions on their own farm. This budget can act as a guide in identifying the cost items which can be considered. Please note that, in this budget, all labour is expensed.

Further information on crop budgeting can be obtained from the Farm Management Division of the Nova Scotia Department of Agriculture and Marketing. Division offices are located in Truro (895-1571, Ext. 328) or Kentville (678-7365).

Prepared by: S. Steeves and G. Comeau

December, 1988



Department of
Agriculture and Marketing

Farm Management

Fact Sheet

1988-104

COST OF PRODUCTION: BARLEY

125.821

This factsheet is intended to be an estimate of the cost of

producing barley. Machinery and cultural operations will differ
from farm to farm as will the costs associated with these.

In preparing this factsheet, certain assumptions were made :

ASSUMPTIONS

1. This farm consists of 125 hectares of barley on a 150 hectare farm.
2. The average yield per hectare is 3.5 tonne.
3. The labour rate per hour is \$ 7.00.
4. The interest rate per annum on operating capital is 12.0 %.
5. The custom rate for lime spreading is \$ 20.50 per tonne, including materials.
6. The average age of machinery & equipment is 5 years.
7. The crop is dried from 16 to 14% moisture at a \$ 10.62 per tonne, including handling costs.

The budget software used to produce this budget is available for use through your local Farm Management Specialist. It requires an IBM - compatible computer and the program Lotus 1-2-3 (release 2 or later) as well as 640 K memory.

FIXED COSTS ASSOCIATED WITH MACHINERY

Machinery Description	Replacement Cost	Crop Hours	Depr. \$/hect.	Ins/Hous. \$/hect.	Repairs \$/hect.	Interest \$/hect.
Fertilizer Spreader 1400 lb	1,800	45	0.34	0.26	0.10	0.51
Field Cultivator 14 ft	10,000	100	2.40	1.24	3.28	3.60
Grain Drill 12 ft	9,200	76	2.34	1.14	1.62	3.52
Plow 4 bottom	7,000	134	1.72	0.75	3.30	2.58
Roller 12 ft	2,500	59	0.64	1.01	0.27	0.96
Sprayer - 3-point hitch	2,400	48	0.59	0.50	0.23	0.88
Storage Bins @ 5000 bu. (4)	40,000		6.91	1.04	6.72	20.74
Tractor 2 WD 65 HP	35,000	211	4.30	1.80	3.54	13.94
Tractor 2 WD 85 HP	45,000	369	5.46	1.98	9.30	17.72
Wagon (2)	20,000	118	5.89	3.32	3.96	8.83
TOTAL FIXED COSTS PER HECTARE			\$30.59	\$13.03	\$32.34	\$73.27

Example Calculations

Depreciation:

1. TOTAL YEARLY DEPRECIATION is calculated by multiplying the replacement price by a replacement factor** times the depreciation rate.

E.g.: Tractor : $(\$45,000 \times 0.527) \times 0.037 = \877.46 .

2. PER HOUR: Total depreciation divided by total hours of use.

E.g.: $\$877.46 / 400 = \2.19 .

3. PER HECTARE: (Hourly depreciation multiplied by no. of crop hours) divided by crop hectareage.

E.g.: $(\$7.44 \times 400) / 125 = \7.02 .

Insurance & Housing:

1. TOTAL YEARLY INSURANCE & HOUSING is calculated by (multiplying the replacement price by a replacement factor times the insurance rate) plus (the storage space required multiplied by the annual cost per square feet)

E.g.: $[(\$45,000 \times 0.527) \times \$6/1000] + (175 \times \$1.00) = \317.20 .

Repairs & Maintenance:

1. PER HOUR COSTS are calculated by multiplying replacement price per thousand by the repair rate.

E.g.: $(\$45,000 / 1000) \times 0.07 = \3.15 .

Interest:

1. TOTAL YEARLY INTEREST is calculated by multiplying the replacement price by the replacement factor times the interest rate per year.

E.g.: $(\$45,000 \times 0.527) \times 12 / 100 = \2845.80 .

**Note: The replacement factor, depreciation rate and the repair factor vary with the age of the machine and the hours used. The factor tables are available from the Farm Management office.

VARIABLE COSTS

1. Cultural Operations

Operation	Hours/ hectare	Times Performed	Horsepower Required	Labour Costs	Fuel & Lub. Costs	Total
Plowing	1.07	1	85	7.49	8.41	15.90
Cultivating	0.40	2	85	5.60	6.28	11.88
Fertilizing	0.36	1	65	2.52	2.16	4.68
Seeding	0.61	1	85	4.27	4.79	9.06
Rolling	0.47	1	65	3.29	2.82	6.11
Spraying	0.38	1	65	2.66	2.28	4.94
Lime - Custom Spread						16.81

 Total Costs for Cultural Operations 25.83 26.75 \$69.39
 =====

2. Material Inputs

Description	Price /Unit	Amount Used	Total
17-17-17 A/N	321.50 tonne	0.4	128.60
Certified Barley Seed	0.44 kg	100	44.00
MCPA Amine 500	4.57 litre	1.68	7.68

 Total Cost for Material Inputs \$180.28
 =====

3. Harvesting

Operation	Hours/ hectare	Horsepower Required	Labour Costs	Fuel & Lub. Costs	Total
Hauling	0.47	65	3.29	2.82	6.11
Hauling	0.47	85	3.29	3.69	6.98
Combining - Custom					75.00
Drying					37.17

 Total Costs for Harvesting 6.58 6.52 \$125.27
 =====

4. Cash Overhead Costs

Interest on Production Costs (Cultural + Material + Harvest)
 12.0 % for 5 months = \$18.75

TOTAL VARIABLE COSTS PER HECTARE

 \$393.68
 =====

PRODUCTION SUMMARY

TOTAL VARIABLE COSTS (page 2)	\$393.68
Fixed Costs	
Machinery (page 1)	\$149.23
Land Interest	
(Interest on land @ 8%, Land value \$1400/ha)	112.00

TOTAL FIXED COSTS	261.23

TOTAL COST TO GROW, HARVEST AND STORE ONE HECTARE OF BARLEY	\$654.91
	=====
TOTAL COST TO GROW, HARVEST AND STORE ONE TONNE OF BARLEY BASED ON A YIELD OF 3.5 TONNE (86% D.M.) PER HECTARE	

Variable Costs	112.48
Fixed Costs	74.64

Total Costs	\$187.12
	=====

IMPACT OF BARLEY YIELD (86% D.M.) ON PER TONNE COSTS

Yield/ha	2.5	3.0	3.5	4.0	4.5
Cost per tonne	-----	-----	-----	-----	-----
Variable	157.47	131.23	112.48	98.42	87.48
Fixed	104.49	87.08	74.64	65.31	58.05
Total	261.96	218.30	187.12	163.73	145.53

=====

This budget is intended to be used as a guide to production costs for this crop in Nova Scotia. It is intended to be used as a guide, for planning purposes. Farmers are encouraged to develop their own budgets based on the conditions on their own farm. This budget can act as a guide in identifying the cost items which can be considered. Please note that, in this budget, all labour is expensed.

Further information on crop budgeting can be obtained from the Farm Management Division of the Nova Scotia Department of Agriculture and Marketing. Division offices are located in Truro (895-1571, Ext. 328) or Kentville (678-7365).

Prepared by: S. Steeves and G. Comeau

December, 1988

Appendix - B

FEED SELF-SUFFICIENCY ? A STUDY OF NOVA SCOTIA FARM OPERATORS TO DETERMINE FUTURE NEEDS FOR FEED PRODUCTION.

The purpose of this study is to obtain information regarding your feed production practices , information sources used , and attitudes toward increased feed production so we can better develop effective extension programs. Please answer all the questions. If you wish to make any comments regarding your answers please feel free to use the margins. All of your comments will be taken into consideration in our analysis.

Thank you for your help

Nova Scotia Department of Agriculture
and Marketing , Extension Services

Q-2 Please indicate how important the following types of information are to the operation of your farm ?

(please circle the number which indicates the level of importance)

	not important		no opinion		very important
A. DAILY MARKET INFORMATION.....	1	2	3	4	5
B. MARKET FORECASTS.....	1	2	3	4	5
C. CROP PRODUCTION TECHNOLOGY...	1	2	3	4	5
D. SELECTION AND USE OF PESTICIDES.....	1	2	3	4	5
E. GOVERNMENT POLICIES.....	1	2	3	4	5
F. WEATHER FORECASTS.....	1	2	3	4	5
G. OTHER (please specify)					
_____	1	2	3	4	5
_____	1	2	3	4	5

Q-3 Please indicate how satisfied you are with the following services offered by the N.S. Dept. of Agriculture and Marketing.

(please circle the number which best describes your level of satisfaction)

	very dissatisfied		no opinion		very satisfied
A. BULLETINS OR PAMPHLETS.....	1	2	3	4	5
B. OFFICE VISITS.....	1	2	3	4	5
C. FARM VISITS OR CALLS.....	1	2	3	4	5
D. CONFERENCES/MEETINGS.....	1	2	3	4	5
E. FEED SAMPLE ANALYSIS.....	1	2	3	4	5
F. SOIL SAMPLE ANALYSIS.....	1	2	3	4	5

Q-4 Please indicate what you think of the information being provided , regarding feed production , by the N. S. Dept. of Agriculture and Marketing.

(circle the number that best describes your level of satisfaction with each of the characteristics described below)

	very dissatisfied		no opinion	very satisfied	
A. UP TO DATE/CURRENT.....	1	2	3	4	5
B. RELIABLE.....	1	2	3	4	5
C. UNBIASED/OBJECTIVE.....	1	2	3	4	5
D. BASED ON RESEARCH.....	1	2	3	4	5
E. PRACTICAL/EASY TO APPLY.....	1	2	3	4	5
F. EASY TO UNDERSTAND.....	1	2	3	4	5
G. CONCISE/BRIEF.....	1	2	3	4	5
H. APPLICABLE TO YOUR AREA.....	1	2	3	4	5
I. EASY TO OBTAIN/ACCESSABLE.....	1	2	3	4	5

B) Now would you select the THREE most important characteristics from the above list.

(please write the letter of your choices in the blanks provided)

1. MOST IMPORTANT _____
2. SECOND MOST IMPORTANT _____
3. THIRD MOST IMPORTANT _____

Q-5 A) Please indicate the importance of the following types of Extension methods being used.

(please circle the number which best indicates the importance of each of method)

	not important	no opinion	very important		
A. SHORT COURSES.....	1	2	3	4	5
B. SEMINARS/MEETINGS.....	1	2	3	4	5
C. TOURS.....	1	2	3	4	5
D. FARM CALLS BY EXTENSION WORKERS.....	1	2	3	4	5
E. DEMONSTRATION SITES.....	1	2	3	4	5
F. RESEARCH PLOTS.....	1	2	3	4	5
G. ON-FARM TRIALS.....	1	2	3	4	5
H. OTHER (specify)	1	2	3	4	5

B) Please indicate the THREE most preferred types of Extension methods from the above list.

(write the letter of your choice in the space provided)

1. MOST PREFERRED _____
2. SECOND MOST PREFERRED _____
3. THIRD MOST PREFERRED _____

C) Of the grain and forage used on your farm , what percentage (%) do you produce yourself ?

(please make an " X " in the space which describes your level of production for both grain and forage)

	<u>GRAIN</u>	<u>FORAGE</u>
1. 100 %.....	_____	_____
2. 75 TO 99 %	_____	_____
3. 50 TO 74 %.....	_____	_____
4. 25 TO 49 %.....	_____	_____
5. 0 TO 24 %	_____	_____
6. 0 %.....	_____	_____

Q-6 Now we would like to ask you about your farm.

A) How much of your land was planted to the following crops in 1989 ?

(please write the number of acres in the space beside the crops indicated)

<u>CEREALS</u>	<u>FORAGE</u> (silage)
BARLEY..... _____ acres	LEGUMES..... _____ acres
WHEAT..... _____ acres	MIXED..... _____ acres
MIXED..... _____ acres	GRASS..... _____ acres
PROTEIN CROPS... _____ acres	CORN..... _____ acres
CORN..... _____ acres	CEREALS..... _____ acres
OTHER	<u>FORAGE</u> (hay)
_____ _____ acres	LEGUMES..... _____ acres
_____ _____ acres	MIXED..... _____ acres
	GRASS..... _____ acres

B) If you are currently producing GRAIN , or planning to in the future , how important are the following considerations in your decision to produce GRAIN ?

(please circle the response which best describes your feelings)

	not important	no opinion	very important		
A. PROVIDE A CASH CROP.....	1	2	3	4	5
B. PROVIDE A CROP ROTATION.....	1	2	3	4	5
C. USED ON FARM FOR FEED.....	1	2	3	4	5
D. UNDERSEED FOR FORAGES.....	1	2	3	4	5
E. SOURCE OF STRAW.....	1	2	3	4	5
F. OTHER (specify)					
_____	1	2	3	4	5
_____	1	2	3	4	5

Q-7 A) Are you interested in increasing your current level of GRAIN production ?

(please circle yes or no)

1. YES

2. NO

B) Which of the following methods will be used to increase grain production ?

(please circle all those which apply)

1. INCREASED YIELD PER ACRE
2. INCREASED ACREAGE
3. MORE INTENSIVE PRODUCTION PRACTICES
4. SUPERIOR YIELDING VARIETIES
5. OTHER (please specify)

WHY ?

C) Are you interested in increasing your current level of FORAGE production ?

(please circle yes or no)

1. YES

2. NO

D) Which of the following methods will be used to increase forage production ?

(please circle all those which apply)

1. INCREASED YIELD PER ACRE
2. INCREASED ACREAGE
3. MORE INTENSIVE PRODUCTION PRACTICES
4. SUPERIOR YIELDING VARIETIES
5. OTHER (please specify)

WHY ?

Q-8 A) In relation to increasing your GRAIN production , please indicate how important the following factors are ;

(please circle the response which best describes how you feel)

	not important		no opinion		very important
A. CURRENT CROP PRICES.....	1	2	3	4	5
B. LIMITED LANDBASE.....	1	2	3	4	5
C. SOIL CHARACTERISTICS.....	1	2	3	4	5
D. CLIMATIC CONDITIONS.....	1	2	3	4	5
E. AVAILABILITY OF EQUIPMENT.....	1	2	3	4	5
F. STORAGE FACILITIES.....	1	2	3	4	5
G. AVAILABILITY OF EXPERTISE.....	1	2	3	4	5
H. INPUT COSTS (seed, fert., lime).....	1	2	3	4	5
I. WEEDS AND DISEASES.....	1	2	3	4	5
J. PAST EXPERIENCE.....	1	2	3	4	5
K. AVAILABILITY OF CUSTOM OPERATORS.....	1	2	3	4	5
L. PROCESSING FACILITIES.....	1	2	3	4	5
M. ENVIRONMENTAL CONSIDERATIONS.....	1	2	3	4	5
N. OTHER (please specify)					
_____	1	2	3	4	5
_____	1	2	3	4	5

B) Now we would like you to choose the THREE most important factors from the above list.

(write the letters in the spaces beside the rank ordering)

1. MOST IMPORTANT _____
2. SECOND MOST IMPORTANT _____
3. THIRD MOST IMPORTANT _____

Q-8 C) In relation to increasing your FORAGE production , please indicate how important the following factors are ;

(please circle the response which best describes how you feel)

	not important		no opinion		very important
A. CURRENT CROP PRICES.....	1	2	3	4	5
B. LIMITED LANDBASE.....	1	2	3	4	5
C. SOIL CHARACTERISTICS.....	1	2	3	4	5
D. CLIMATIC CONDITIONS.....	1	2	3	4	5
E. AVAILABILITY OF EQUIPMENT.....	1	2	3	4	5
F. STORAGE FACILITIES.....	1	2	3	4	5
G. AVAILABILITY OF EXPERTISE.....	1	2	3	4	5
H. INPUT COSTS (seed,fert.,lime).....	1	2	3	4	5
I. WEEDS AND DISEASES.....	1	2	3	4	5
J. PAST EXPERIENCE.....	1	2	3	4	5
K. AVAILABILITY OF CUSTOM OPERATORS.....	1	2	3	4	5
L. ENVIRONMENTAL CONSIDERATIONS..	1	2	3	4	5
M. OTHER (please specify)					
_____	1	2	3	4	5
_____	1	2	3	4	5

D) Now we would like you to choose the THREE most important factors from the above list.

(write the letters in the spaces beside the rank ordering)

1. MOST IMPORTANT _____
2. SECOND MOST IMPORTANT _____
3. THIRD MOST IMPORTANT _____

Q-9 Do you feel feed self-sufficiency is obtainable on your farm ?
(please circle the response best suited for both forage and grain)

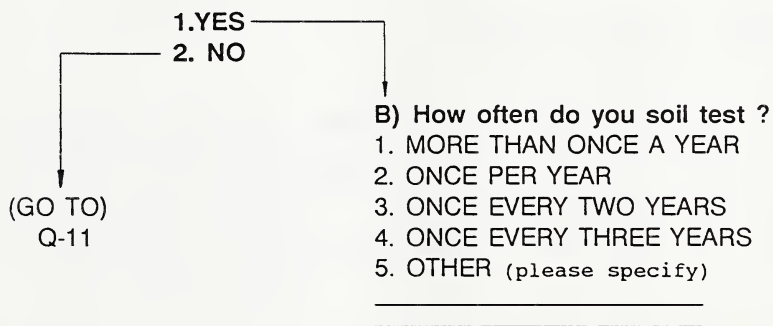
FORAGE

1. YES
2. NO

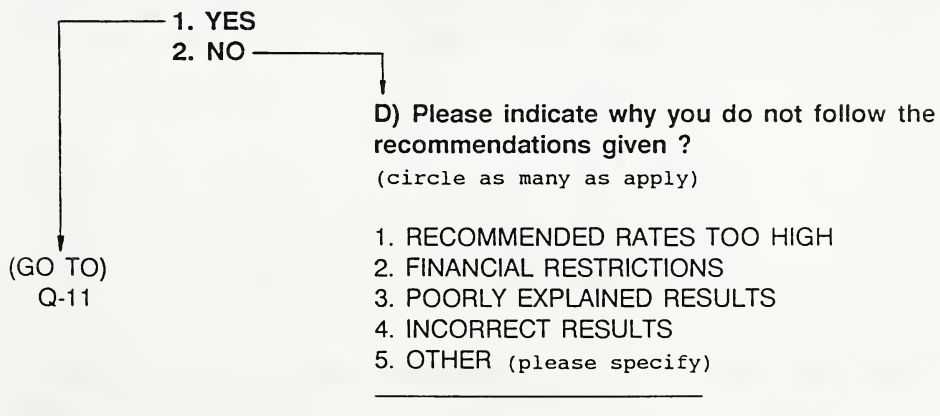
GRAIN

1. YES
2. NO

Q-10 A) Do you soil test your land ? (please circle yes or no)



C) Do you follow the soil test recommendations ?



Q-11 A) Is a financial incentive program required to encourage a higher level of GRAIN production on your farm ? (please circle yes or no)

1. YES
 2. NO —————→ (GO TO Q-12)

B) Please indicate which type of incentive program you would prefer ?
 (circle the number which best describes your level of preference)

	not preferred	no opinion	most preferred		
A. INCENTIVE ON EACH ACRE.....	1	2	3	4	5
B. INCENTIVE ON FACILITIES.....	1	2	3	4	5
C. INCENTIVE ON EQUIPMENT.....	1	2	3	4	5
D. INCENTIVE ON INPUTS.....	1	2	3	4	5
E. INCENTIVE ON PER BUSHEL PRICE...	1	2	3	4	5
F. OTHER (please specify)					
_____	1	2	3	4	5
_____	1	2	3	4	5

Q-12 A) Would you please indicate the number of days you and/or your spouse worked away from the farm in 1989? (please circle the number which best describes the days worked off the farm)

Farm operator

Spouse

- | | |
|-----------------------|-----------------------|
| 1. LESS THAN 1 MONTH | 1. LESS THAN 1 MONTH |
| 2. FROM 1 TO 3 MONTHS | 2. FROM 1 TO 3 MONTHS |
| 3. FROM 4 TO 6 MONTHS | 3. FROM 4 TO 6 MONTHS |
| 4. FROM 7 TO 9 MONTHS | 4. FROM 7 TO 9 MONTHS |
| 5. MORE THAN 9 MONTHS | 5. MORE THAN 9 MONTHS |

B) What is the approximate percentage , if any , of the gross family income which comes from non-farm sources ? _____ %

In this section please feel free to provide any comments or questions that you may have about this questionnaire. All of your comments will be read and taken into account.

Your contribution to this study is very greatly appreciated. If you would like a summary of the results please print your name and address on the back of the return envelope.

Return to : Bev Connell
P.O. Box 248
Windsor , N.S.
BON 2T0

Appendix - C

Rail Freight Rates, FFA Rates, and Private Cost of Feed
Grain Shipments Ex. Thunder Bay and Chatham to
Truro, N. S. 1973 - 84
 (\$ per tonne as of July 31)
TRURO, N. S.

<u>YEAR</u>	RAIL FREIGHT <u>RATE</u>	FFA <u>RATE</u>	PRIVATE <u>RATE</u>	<u>COST</u>
<u>WESTERN GRAINS EX. THUNDER BAY</u>				
1973	11.46	10.36		1.10
1974	11.90	10.36		1.54
1975	17.86	10.36		7.50
1976	20.50	10.36		10.14
1977	22.48	10.40		12.08
1978	24.91	10.40		14.51
1979	28.22	10.40		17.82
1980	32.62	10.40		22.22
1981	36.81	10.40		26.41
1982	42.77	10.40		32.37
1983	45.41	10.41		35.01
1984	47.63	10.41		37.23

ONTARIO CORN EX. CHATHAM

1973	11.47	5.29		6.18
1974	11.91	5.29		6.62
1975	13.23	5.29		7.94
1976	16.54	5.29		11.25
1977	19.18	6.00		13.18
1978	20.73	6.00		14.73
1979	23.37	6.00		17.37
1980	27.12	6.00		21.12
1981	31.09	6.00		25.09
1982	35.94	6.00		29.94
1983	38.81	6.00		32.81
1984	42.34	6.00		36.34

(Source - Maritime Farm Council Report, 1985)

Appendix - D

P. O. Box 248
Windsor, N. S.
BON 2T0
March 23rd, 1990

Dear Farm Operator:

The Extension Services Division of the Nova Scotia Department of Agriculture and Marketing is conducting a study on feed production in Nova Scotia. We feel that with the rising costs associated with imported feed grains there is a need to determine what you feel is necessary for future feed production increases. This study will provide very important information which will be used in formulating an effective extension program to meet your needs.

Your farm is one of a small number of farms in your region in which people are being asked to participate in this study. In order for the results to truly represent farm operators in Nova Scotia, it is important that each questionnaire be completed and returned.

If you would like to receive a copy of the final results of this study, please write "Copy of Results Requested" on the back of the return envelope. If you have any questions, please do not hesitate to contact me. The telephone number is 798-4272.

We look forward to your participation and thank you for your assistance with this study.

Sincerely,

Bev T. Connell
Project Co-ordinator

BC:dj
Encl.

MARCH 30 , 1990

Last week a questionnaire requesting your opinion on feed self-sufficiency and your feed production practices was mailed to you. Your name was drawn at random from a list of farmers in the province.

If you have already completed and returned it to me accept my sincere thanks. If not , please do so as soon as possible. Because it has only been sent to a representative sample of farms , it is extremely important that yours also be included in the study if the results are to accurately represent farmers opinions.

If by chance you did not receive the questionnaire , or it has been misplaced , please call me right away at 798-4272 and I will mail another one to you.

Sincerely ,

Bev T. Connell
Project Coordinator

Appendix - E

Table 55. Education and % Non-Farm Income

Education	% Non-Farm Income			
	0%	1 - 49%	50 - 74%	>75%
Grade School (n=43)	37.2	27.9	7.0	27.9
High School (n=175)	43.4	28.6	11.4	27.9
Coll./Univ. (n=140)	33.6	35.7	15.0	15.7

Table 56. Source of Grain Information by Gross Farm Income
(% of Respondents)

Information Source	(n=91)	(n=31)	(n=76)	(n=93)
	<\$50,000	50-100,000	100- 250,000	>\$250,000
News/Mags.	37.4	38.7	42.1	28.0
Radio/TV	16.5	16.1	7.9	12.9
Agr. Rep.	16.5	16.1	14.5	10.8
Salesperson	5.5	6.5	7.9	21.5
Friend/ Neigh.	9.9	3.2	7.9	3.2
S&C. Spclst	14.3	19.4	19.7	23.7

Table 57. Source of Forage Information by Gross Farm Income
(% of Respondents)

Information Source	(n=91) <\$50,000	(n=29) 50-100,000	(n=56) 100- 250,000	(n=83) >\$250,000
News/Mags.	37.4	20.7	14.3	26.5
Radio/TV	13.2	10.3	1.2	7.2
Agr. Rep.	18.7	20.7	21.4	16.9
Salesperson	4.4	13.8	3.6	12.0
Friend/ Neigh.	9.9	10.3	21.4	24.1
S&C. Spclst.	15.4	24.1	39.3	34.9

Table 58. Source of Grain Information by % Non-Farm Income
(% of Respondents)

Information Source	0%	1-49%	50-74%	>75%
News/Mags.	31.0	42.1	45.5	29.4
Radio/TV	10.6	13.7	15.2	15.7
Agr. Rep.	15.6	14.7	15.2	9.8
Salesperson	18.6	6.3	0	11.8
Friend/Neigh.	4.4	6.3	15.2	5.9
S&C. Spclst.	20.4	14.8	9.1	27.5

Table 59. Source of Grain Information by Education
(% of Respondents)

Information Source	Education of Farm Operators		
	(n=27) Grade School	(n=157) High School	(n=112) Coll./Univ.
News/Mags.	22.2	34.4	36.0
Radio/TV	29.6	17.2	2.6
Agr. Rep.	18.5	17.2	13.2
Salesperson	11.1	9.9	8.8
Friend/ Neigh.	7.0	3.9	8.8
S&C. Spclst.	11.1	17.2	30.7

Table 60. Source of Forage Information by % Non-Farm Income
(% of Respondents)

Information Source	0%	1-49%	50-74%	>75%
News/Mags.	31.0	41.2	45.5	27.1
Radio/TV	6.9	6.2	9.1	14.6
Agr. Rep.	17.2	17.5	15.2	10.4
Salesperson	11.1	9.9	6.1	8.3
Friend/Neigh.	5.2	11.3	6.1	14.6
S&C. Specialist	31.0	18.6	18.2	25.0

Table 61. Source of Forage Information by Education
(% of Respondents)

Information Source	Education of Farm Operator		
	(n=38) Grade School	(n=141) High School	(n=114) Coll./Univ.
News/Mags.	26.3	36.2	36.0
Radio/TV	23.7	8.5	2.6
Agr. Rep.	26.3	17.0	13.2
Salesperson	0	7.8	8.8
Friend/Neigh.	15.8	7.1	8.8
S&C. Speclst.	7.9	23.4	30.7

Table 62. Characteristics of Information Provided by
N.S.D.A.M. by Gross Farm Income
(Average Score: 1 = Not Satisfied;
5 = Very Satisfied)

Character	(n=93) <\$50,000	(n=37) 50- 100,000	(n=82) 100- 250,000	(n=101) >\$250,000
Up to Date	3.7	3.4	3.7	3.7
Reliable	3.5	3.7	3.7	3.8
Unbiased	3.5	3.2	3.5	3.7
Based on Research	3.7	3.4	3.8	3.8
Practical	3.4	3.4	3.5	3.8
Understandable	3.6	3.6	3.7	3.8
Concise	3.4	3.4	3.6	3.5
Applic. to Area	3.6	3.2	3.6	3.7
Easy to Obtain	3.9	3.6	3.8	3.9

Table 63. Characteristics of Information Provided by N.S.D.A.M. by Education (Average Score: 1=Not Satisfied; 5=Very Satisfied)

Character	Education of Farm Operator		
	(n=34) Grade School	(n=150) High School	(n=132) Coll./Univ.
Up to Date	4.7	3.6	3.8
Reliable	2.9	3.7	3.5
Unbiased	3.4	3.5	3.6
Based on Research	3.6	3.7	3.8
Practical	3.5	3.4	3.5
Understandable	3.5	3.6	3.8
Concise	3.2	3.4	3.4
Applic. to Area	3.5	3.8	3.5
Easy to Obtain	3.8	3.8	3.8

Table 64. Characteristics of Information Provided by
N.S.D.A.M. by % Non-Farm Income (Average Score:
1=Not Satisfied; 5=Very Satisfied)

Character	(n=123) 0%	(n=100) 1-49%	(n=41) 50-74%	(n=31) >75%
Up to Date	3.7	3.7	3.7	3.4
Reliable	3.7	3.8	3.6	3.4
Unbiased	3.6	3.5	3.6	3.1
Based on Research	3.8	3.7	3.7	3.5
Practical	3.5	3.6	3.4	3.3
Understandable	3.7	3.6	3.6	3.5
Concise	3.6	3.4	3.6	3.4
Applic. to Area	3.7	3.5	3.5	4.0
Easy to Obtain	4.0	3.8	3.8	3.6

Table 65. Extension Method Preferred by Gross Farm Income
(Average Score: 1=Not Preferred; 5=Most Preferred)

Ext. Method	<\$50,000	50- 100,000	100- 250,000	>\$250,000
Short Course	4.0	3.8	3.7	3.8
Sem./Meeting	4.0	4.0	4.1	4.2
Tours	3.8	3.6	3.9	4.0
Farm Calls	3.9	3.9	4.2	4.1
Demo. Sites	3.8	3.8	3.9	3.9
Research Plots	3.9	3.8	4.0	4.0
On-Farm Trials	4.0	4.1	4.1	4.2

Table 66. Extension Method Preferred by Education
(Average Score: 1=Not Preferred;
5=Most Preferred)

Ext. Method	Education of Farm Operator		
	Grade School	High School	Coll./Univ.
Short Course	3.9	3.9	3.8
Sem./Meeting	3.7	4.0	4.2
Tours	4.1	4.0	3.8
Farm Calls	4.0	4.3	4.0
Demo. Sites	3.6	4.0	3.9
Research Plots	3.9	2.7	4.1
On-Farm Trials	3.9	4.2	4.1

Table 67. Extension Method Preferred by % Non-Farm
Income (Average Score: 1=Not Preferred;
5=Most Preferred)

Ext. Method	0%	1-49%	50-74%	>75%
Short Course	3.8	3.9	4.2	3.7
Sem./Meeting	4.1	4.1	4.0	3.9
Tours	4.0	3.4	3.6	3.9
Farm Calls	4.1	3.9	4.2	4.0
Demo. Sites	3.9	3.9	4.0	3.8
Research Plots	4.0	4.0	3.9	3.8
On-Farm Trials	4.2	4.1	4.2	4.6

Table 68. Percent Grain and Forage Produced by Education
(% of Respondents)

% Grain Grown	Education of Farm Operator		
	(n=39) Grade School	(n=146) High School	(n=136) Coll./Univ.
0%	45.7	40.0	44.6
1-49%	15.0	27.3	35.3
50-75%	15.0	12.1	6.5
75-100%	22.5	20.6	13.7
% Forage Grown			
0%	0.9	4.3	11.4
1-49%	5.7	1.1	0
50-75%	5.7	2.2	1.5
75-100%	89.7	92.5	87.1

Table 69. Percent Grain and Forage Produced by Gross Farm
Income (% of Respondents)

% Grain Grown	(n=107) <\$50,000	(n=41) 50- 100,000	(n=91) 100- 250,000	(n=103) >\$250,000
0%	39.6	35.0	53.4	41.5
1-49%	14.2	25.0	33.7	41.5
50-75%	20.8	5.0	3.3	6.6
75-100%	25.5	35.0	9.8	10.4
% Forage Grown				
0%	4.6	2.4	1.1	16.3
1-49%	2.8	0	0	1.0
50-75%	6.4	0	1.1	0
75-100%	86.2	97.6	87.8	82.7

Table 70. Percent Grain and Forage Produced by Percent Non-Farm Income (% of Respondents)

% Grain Grown	0%	1-49%	50-74%	>75%
0%	48.5	31.8	48.8	50.0
1-49%	36.2	26.2	22.0	21.7
50-75%	5.1	15.9	9.8	10.0
75-100%	10.1	26.2	19.4	18.3
% Forage Grown				
0%	5.3	5.7	9.5	9.4
1-49%	0.8	1.9	0	1.6
50-75%	0.8	0.9	9.5	3.1
75-100%	93.1	91.5	81.0	85.9

Table 71. Importance of Grain Use by Gross Farm Income (Average Score: 1=Not Important; 5=Very Important)

Grain Use	(n=76) <\$50,000	(n=36) 50-100,000	(n=64) 100- 250,000	(n=85) >\$250,000
Cash Crop	2.2	2.1	2.0	2.4
Crop Rotat.	4.4	3.9	4.0	4.1
Use on Farm	4.6	4.5	3.9	3.9
Underseed	3.7	3.6	3.2	2.9
Straw	3.7	4.4	3.4	3.6

Table 72. Importance of Grain Use by Education
(Average Score: 1=Not Important;
5=Very Important)

Grain Use	Education of Farm Operator		
	(n=25) Grade School	(n=132) High School	(n=108) Coll./Univ.
Cash Crop	2.3	2.2	2.2
Crop Rotat.	3.4	4.0	4.0
Use on Farm	4.5	4.3	3.7
Underseed	3.9	3.4	3.0
Straw	3.6	3.7	3.4

Table 73. Importance of Grain Use by Percent Non-Farm
Income (Average Score: 1=Not Important;
5=Very Important)

Grain Use	(n=102) 0%	(n=89) 1-49%	(n=29) 50-74%	(n=45) >75%
Cash Crop	1.9	2.5	1.9	2.4
Crop Rotat.	4.0	4.1	3.9	3.7
Use on Farm	3.9	4.4	4.4	4.3
Underseed	3.1	3.6	3.5	3.4
Straw	3.7	3.8	3.3	3.6

Table 74. Importance of Limiting Factors of Increased Forage Production by Ability to Become Self-Sufficient in Forage

Limiting Factor	Forage	
	(n=221) Yes	(n=13) No
Crop Prices	3.0	2.9
Limited Land	3.0	3.0
Soil Characteristics	3.8	3.0
Climate Conditions	4.0	3.0
Available Equipment	3.2	2.8
Storage Facilities	3.6	3.5
Available Expertise	3.2	3.1
Input Costs	4.3	3.3
Weed/Disease	3.5	3.0
Past Experience	3.9	2.6
Custom Operation	2.3	2.3
Environmental Considerations	3.1	3.1

(*Note: Average score: 1= not important, 5= very important)

Table 75. Education (farm operator) by Ability to Become Feed Self-Sufficient (% of Respondents)

% Non-Farm \$	Grain		Forage	
	Yes	No	Yes	No
Grade School (n=40)	34.2	65.8*	85.7*	14.3
High School (n=162)	41.1	58.9*	93.2*	6.8
Coll./Univ. (n=128)	34.1	65.9*	92.2*	7.8

(* = significant at 0.05)

Table 76. Percent Non-Farm Income by Ability to Become Feed Self-Sufficient (% of Respondents)

% Non-Farm \$	Grain		Forage	
	Yes	No	Yes	No
0% (n=133)	24.3	75.7*	93.1*	6.9
1-49% (n=101)	45.5	54.5	92.2*	7.8
50-74% (n=39)	43.2	56.8	92.7*	7.3
>75% (n=61)	46.6	53.4	88.9*	11.1

(* = significant at 0.05)

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